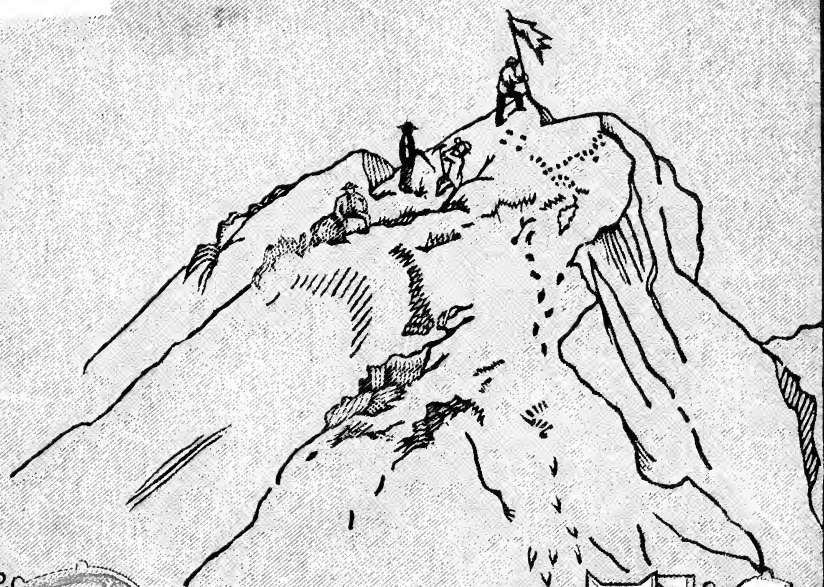


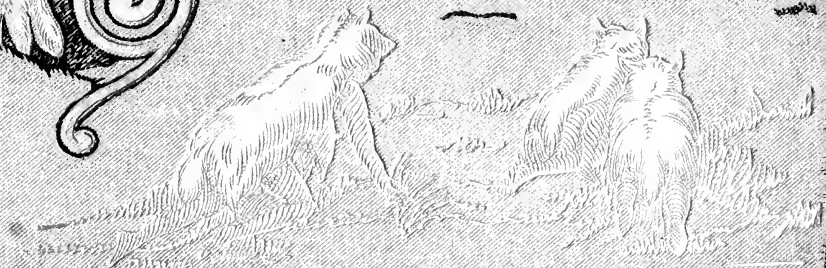
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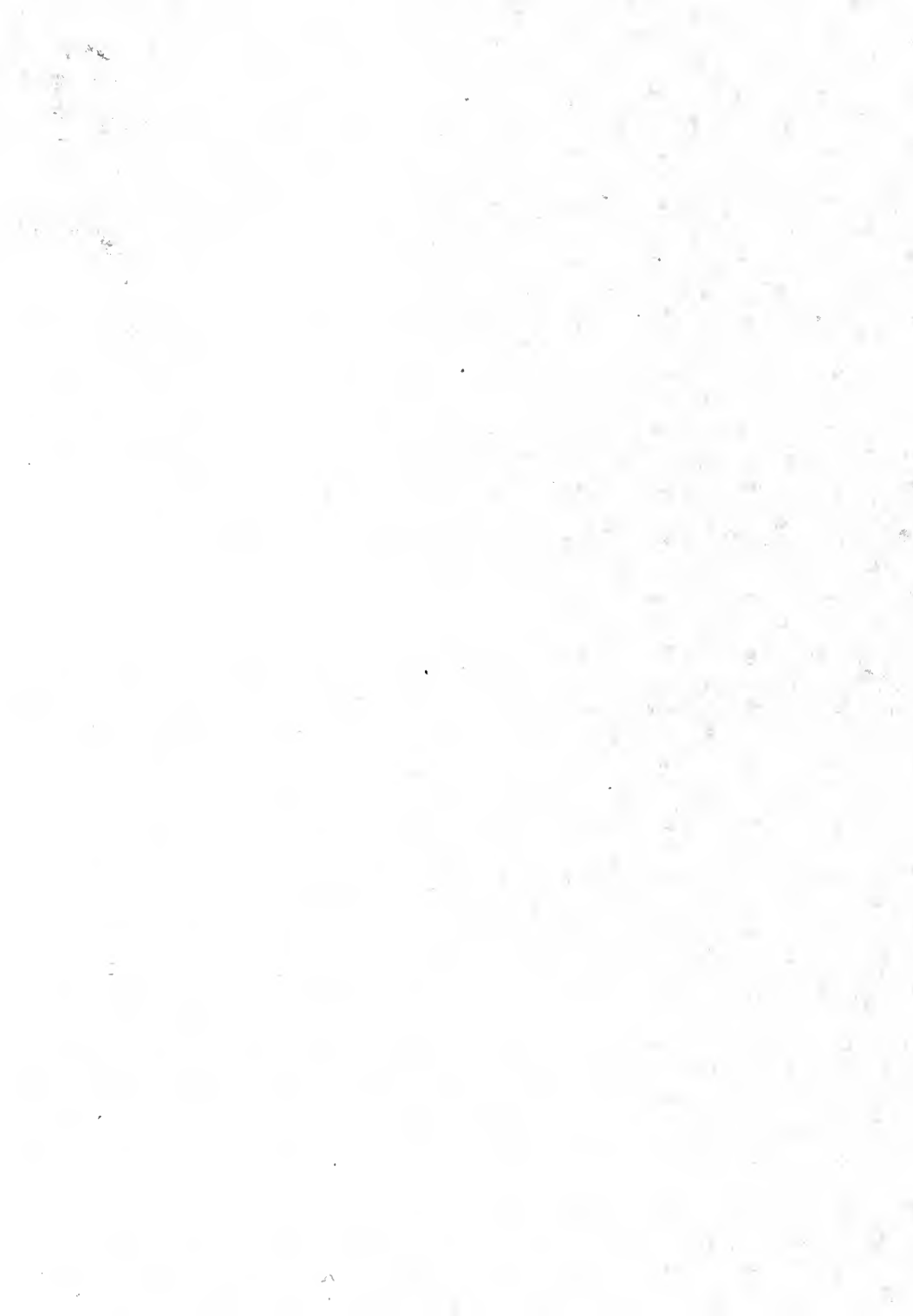


Boys in the Mountains





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Camp Hard Luck, in the Sierra Nevada.

FRONTISPIECE.

BOYS IN THE MOUNTAINS

AND

ON THE PLAINS;

OR,

THE WESTERN ADVENTURES OF TOM SMART,
BOB EDGE, AND PETER SMALL.

BY

WILLIAM H. RIDEING,

MEMBER OF THE GEOGRAPHICAL SURVEYS UNDER LIEUTENANT WHEELER.

WITH NUMEROUS ILLUSTRATIONS.

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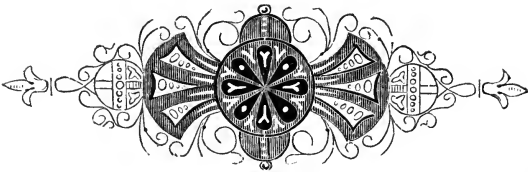
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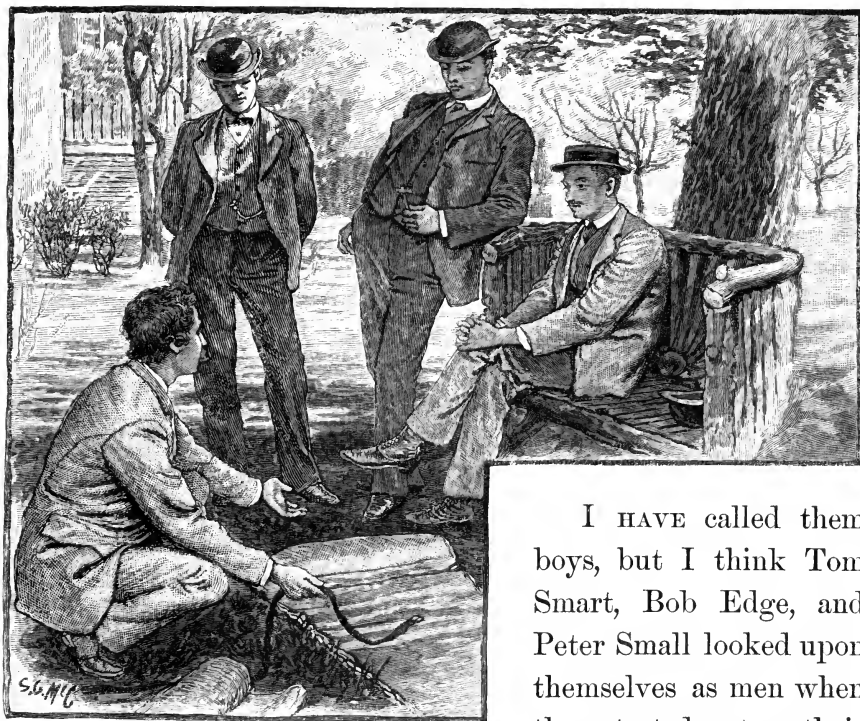
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BOYS IN THE MOUNTAINS.

CHAPTER I.

GETTING READY FOR THE FIELD.



The Lieutenant's Camp-Bedding.

I HAVE called them boys, but I think Tom Smart, Bob Edge, and Peter Small looked upon themselves as men when they started out on their Western expedition six

years ago. They were not yet one-and-twenty, but they possessed many of the best of mature qualities.

Tom intended to settle somewhere in the West, but, before investing his handsome little fortune in any ranch, he, like a wise boy, desired to see the country. He had a secondary motive for the expedition. His father had been one of the most distinguished members of the Alpine Club—a brave and even reckless mountaineer, who had preceded Tyndall and Whymper in the Alps with exploits no less courageous than theirs. When but a child, Tom had spent a season in the neighborhood of Zermatt with him, and had accompanied him on some of his less perilous trips, in which he had acquired a taste for the glories and the exhilaration of mountain scenery. It was in part to gratify this taste among the peaks of his own country that he abandoned a projected excursion to Europe, and made arrangements to go West, though his main purpose was to select some field for the investment of his capital.

Bob and Peter were his life-long friends. He could not remember a time when he had not known them. He *did* remember playing with them when all three had been dressed in infantile petticoats. They had always been inseparable—the fastest of fast friends at school and at college.

When Tom's plan became known, Bob and Peter declared at once that they would go with him; and, if they had been independent of parental control, there is no doubt they would have followed him wherever he chose to lead, without a moment's hesitation. But the voices of their fathers had to be heard, and these gentlemen were opposed to the expedition. It was time, they said, that their sons entered business.

Now, had the project originated with any one but Tom

Smart, it would have been vetoed at once. But Tom possessed the confidence of both Mr. Edge and Mr. Small. He was known by them to be a courageous and level-headed young man, who, though adventurous, could be trusted, and who was not likely to do anything foolish. He had laid out his plans and made his calculations so well, and with such a shrewd understanding of what was before him, that, when he approached them a second time, they did not laugh at his proposal that Bob and Peter should go with him, but listened to him with great interest. They asked for time to consider, and while the matter was in abeyance it happened that the village practitioner, the kind old Dr. —, met them together one day and adroitly turned the conversation into the results of over-study among young men, and the wonderful effects of a season of out-door life in building them up for the arduous duties of a business career. The doctor was so emphatic in speaking of the insidious nature of the nervous diseases which are found among youth owing to over-study, that, when the two gentlemen reached their homes, Mr. Edge looked into Bob's face and Mr. Small into Peter's face for some signs of decay, which the features and complexions of those young men did not show in the least; and when Tom Smart next spoke of his expedition it took only a little persuasion to obtain their consent to the proposition that their sons should accompany him.

I suspect that the doctor connived with the boys to secure this result, and that he was bribed to bring the subject of over-study to the attention of the elders. He was an enthusiastic entomologist, and as soon as the consent had been

obtained a very rare moth passed out of Tom's cabinet into his, where for months afterward he lovingly examined it at least once a day.

How did these young men propose to go mountaineering? Did they intend to take the train to Denver and "do" some of the easy peaks which are within the reach of every tourist? Nothing of the kind. Tom had a passion for exploration, and he communicated his ambitions to his friends. He meant to strike out in little-known regions, to learn their natural history, and to observe altitudes. Among his many acquaintances was an officer of the Engineer Corps of the United States Army, who had spent several years in Western surveys, and whose advice was very useful.

"Let your outfit be as simple as possible," this gentleman said. "The more persons and the more packages you have in your party, the more you will be hampered, and the less you will be able to do and see. The art of traveling in the field is to reduce your equipment to the smallest compass possible. Every man must do his own work; every man must deprive himself of every article that is not absolutely necessary."

"I've seen a capital little camp-bedstead that folds up into a very small space," said Bob Edge, who had been listening attentively.

"A camp-bedstead? For what?" demanded the lieutenant, in a sharp voice. "Don't think of such a thing, or perhaps you'd like a fancy toilet set as well. Why, a bedstead is a luxury of which a lieutenant-general would not even dream in the field. A strip of canvas is the only bedstead you

want, and if you spread that over some pine-boughs you will have a couch that you will often long for when you are home again."

"Would you recommend a wall-tent or an A-tent?" inquired Peter, who was also standing by.

"What are the boys dreaming of?" cried the lieutenant, with renewed astonishment. "Would you like to fold up the Fifth Avenue Hotel and take that with you? If you are left to yourselves, it is evident that you will have an outfit which will require about thirty mules, ten packers, and an escort of cavalry. Now, look here. All you want is a 'dog' tent, which one man can pitch without the help of others, and which will roll up into a bundle that you may carry under your arm. Why is it called a 'dog' tent? Because, I guess, it is about the size of a kennel. It is just as useful for keeping off the rain and snow as a larger one, and it has the advantage of lightness and compactness, two things which must be studied in all your details. Every pound you add to the weight of your outfit will impede your movements, as I said before. If you carry an A-tent, it will take two persons to put it up and two to take it down, and it will make an unwieldy bundle. A 'dog' tent is quite sufficient, especially as you will sleep most of the time without any tent at all."

"Without any tent!" murmured Bob and Peter, who, among the many pictures they had mentally drawn of their life in the field, had treasured one of a roomy canvas house in which they themselves figured lying down at ease, while the rain fell in torrents and the wind blew bitterly outside. They had

had an experience of "roughing it" already in the White Mountains, but to be tentless seemed a trifle too much of a tax on their endurance.

"Yes," continued the lieutenant, "except in very stormy weather. If you will come to our house this afternoon, I will show you how to be comfortable without a tent."

The lieutenant was spending a holiday with his father after a season of surveying in Arizona, and had brought most of his outfit with him. The boys were glad to accept his invitation. Taking them into the garden, he unrolled a bundle which was so closely packed that it seemed to be solid.

"There," he said, "is the whole of my camp-bedding, and it has been enough to keep me comfortable when the nights have been freezing. It is packed compactly, as you see, because a loose bundle is one of the greatest impediments of movement in the field. If a bundle is saggy and not compressed as much as possible, it can not be properly fastened on the back of the pack-animal, and the party is delayed again and again on the march while the packer readjusts it and tightens the ropes."

The wrapper of the bundle was a piece of strong canvas about nine feet square, and the lieutenant spread this over the ground. Above it he placed an ordinary rubber blanket, and upon this two saddle-blankets.

"This," he said, "is my mattress."

He then took out three pairs of double army blankets, and laid one above the other, folded across the middle so that each overlapped the other, thus forming a sort of sack. Finally, he drew the canvas sheet over this and fastened it

with a buckle and strap at the bottom, and a buckle and strap in the middle. He crawled in at the upper end, where he had put a small rubber pillow, and when stretched out pulled this end of the canvas over him, buckled it, and put on a tight-fitting, home-made cap of worsted.

"I've slept many a night in rain and snow in this without discomfort," he said. "Sometimes the canvas has been sheathed in ice in the morning, and yet I have slept without knowing that it was at all cold.

"If," he added, "you are disposed to luxuriate, dig a trench about a foot deep and as long as your body, and fill it with branches of pine or cedar, and over this spread your canvas. Your mattress will then be a spring one, and your slumbers sweeter than they have ever been before."

Tom had been standing quietly by.

"I've thought of having three bags made of buffalo-robcs, one for each of us," he said. "The bags would be long enough to cover us from head to foot, and in addition to the canvas and blankets would certainly keep us warm."

"A very good idea," said the lieutenant; "but remember that the fewer articles you have, the faster you will be able to travel."

His advice was followed, and he took pains to make it exact and practical. Many articles which they had contemplated taking, and which would have been purely ornamental, were abandoned. For instance, Bob Edge had proposed to have a pair of buckskin trousers made, with bell-buttons and a brilliant fringe down the seams of the legs. He also had contemplated a *sombrero*, with a brim nearly as

wide as an umbrella, and had intended to sport around his belt a bowie-knife and a pair of antiquated revolvers of enormous caliber. These latter articles he had arranged to buy at an extravagant price from Sam Woodfield, the village hackman, who had at one time been in California. But the lieutenant convinced him that it would be a waste of money, for the field is the very place to wear out old clothes.

"As for arms, you may need them, but get them of the latest pattern. A repeating rifle and an army revolver are what you want."

Peter Small had prepared a list of articles which he proposed to obtain for his personal use, and it included an armament extensive enough for a full-blown pirate, and as many toilet appurtenances as a fastidious woman would require. He had seen somewhere, in Boston, an elaborate dressing-case, about as large as an old-fashioned mahogany writing-desk, and he meant to take that.

"That's right," said the lieutenant, sarcastically, "and don't forget to take a valet also; you will need one. But for my part, when I am in the field, I am content with a comb and brush in a linen bag, a sponge in a rubber bag, and a tooth-brush with a metallic protector. I stow away these things in my roll of bedding."

Peter reduced his list materially.

Even Tom, whose experience was much larger and whose discretion was much greater than that of his companions, was disposed to provide several things which the lieutenant declared to be superfluous. Having among his other talents a "knack" for carpentering, he had designed a portable mess-table.

"It's very ingenious," said the lieutenant, when he saw it; "but, my dear boy, you don't want a mess-table of any kind. We have no mess-tables, and your appetites will be good enough to do without one. If they have to be coaxed, however, a sheet of oil-cloth or one of your rubber blankets spread over the ground will seem so like a luxury that it will sweeten your 'hard tack,' and make your salt pork taste like spring lamb."

It was a very fortunate thing for them that the lieutenant happened to be at home while the boys were preparing for their expedition. He might have been called an old explorer, though he had only just been promoted to a first-lieutenancy, and he was familiar with all the shifts and expedients of camp-life. He had been in charge of a party of surveyors in New Mexico and Arizona for four field seasons, and he had already received orders to proceed to Dakota for similar work at the close of his vacation. Once, when his detachment had been encamped near Albuquerque, his mules had been spirited away by Mexicans in the night; and, accompanied by only one man, he had followed their trail over three hundred miles in the wildest country and then recovered them. His work on the surveys had been more than ordinarily successful.

Through his advice, the estimated cost of the expedition which the boys proposed was reduced nearly one half, and they were enabled to enter the field with an outfit so simple and well chosen that it gave them an air of experience, which protected them from many attempts at imposition when they reached Colorado.

Colorado was the country they chose to begin with. It was their intention to afterward visit Utah, Nevada, and California. It must not be imagined that they proposed to devote themselves wholly to pleasure. Tom Smart, as we know, wanted to select a favorable location for sheep or cattle farming, and had a commission to collect specimens for one of the scientific societies of Boston. Bob Edge knew enough of minerals to believe that his knowledge of the science might reveal a valuable mine to him somewhere up in the mountains. Peter had been invited to write descriptive letters for one of the great city dailies, and had been promised a very handsome price for his contributions. He was not without experience at this sort of work, having had a number of stories and articles published in "The Century" and "Harper's." But, though each had something in view by which he hoped to recover a part of his expenditure, the chief purpose of all was to stand triumphant on some of the loftiest peaks.

What adventures they had we shall see; but it is worth while looking, in the next chapter, at some of the characteristics of American mountains.

CHAPTER II.

MANY KINDS OF MOUNTAINS.

THE indefatigable members of the Alpine Club, who find exhilaration in peril and relief for their pent-up exuberance in overcoming such pinnacles as the Matterhorn, might explore the Rocky Mountains for months without once encountering a peak which, at the proper season, can not be attained with little of the danger and toil that are constantly met with in the Alps. Nature has been gentler in building the Western ranges; and, though they are riven by chasms of depth and verticality unsurpassed, the summits can generally be reached in the saddle, or, at least, by a recourse to "all-fours" within a few hundred feet of the top.

If "hard" mountains are spoken of to the veterans of the Western surveys, they are apt to smile incredulously; they speak of Whymper's "heroics," and declare that a peak was never made which could not be scaled—forgetting Mount Everest, that wonderful mountain of India, which has never been trodden by man.

But, while the Alps are more abrupt, and, in some instances, more frangible, than that immense Western chain which is built along the continent like a wall from Alaska



Pure Mountain-Peaks, Colorado.

to the beginning of the Cordilleras, in Mexico, the mountaineer in the West is confronted by other obstacles and perils than those entailed by the precipitousness of the peak or the treacherousness of the avalanche; and scarcely one of these men, who belittle their own achievements, has not had some experience as thrilling as any recorded in the "Alpine Journal."

The glacier must be insecure indeed, the cliff unimaginably bold, and the apex more like a needle than it is apt to be, to daunt the experienced mountaineer; and the Government surveyor who should return to camp and declare a peak impracticable from any other cause than impassable depths of snow would be laughed at by his comrades.

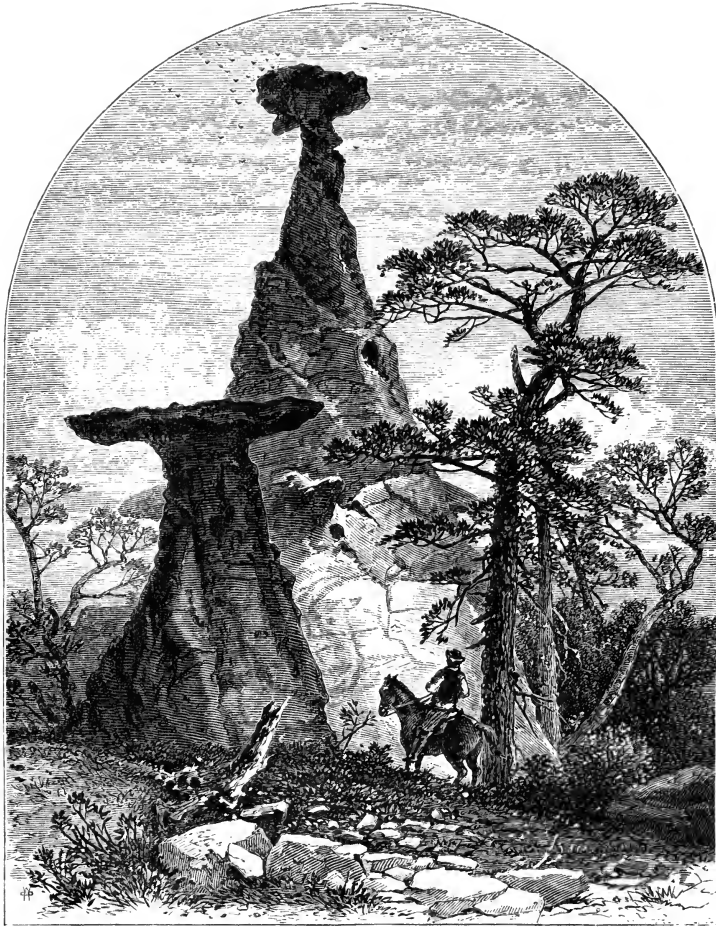
The greatest difficulties are encountered not so much on what may be called the pure peaks as on the *mesas*, or tablelands with perpendicular escarpments, the cañon-walls, and the volcanic cones. The *mesas* and the cañon-walls are the most dangerous of all, as they are often soft and treacherous. The volcanic cones are tedious, as the ashes or cinders afford at the best but a slippery foothold, and the cone is sometimes thrice climbed as far as distance goes, for the climber is constantly slipping back on his course. Pure mountain-peaks are not often dangerous in America, but the narratives of the ascents of Mount Hayden and Mount Tyn-dall reveal perils and difficulties not inferior to those that abound in exploration of the Alps.

Let us look in epitome over the characteristics of the mountains of the West. Predominant are those eroded sandstones and rain-carved sandstone clays which assume an archi-

tectural shapeliness in one spot and in another have an unearthly likeness to the creations of some preposterous goblin.

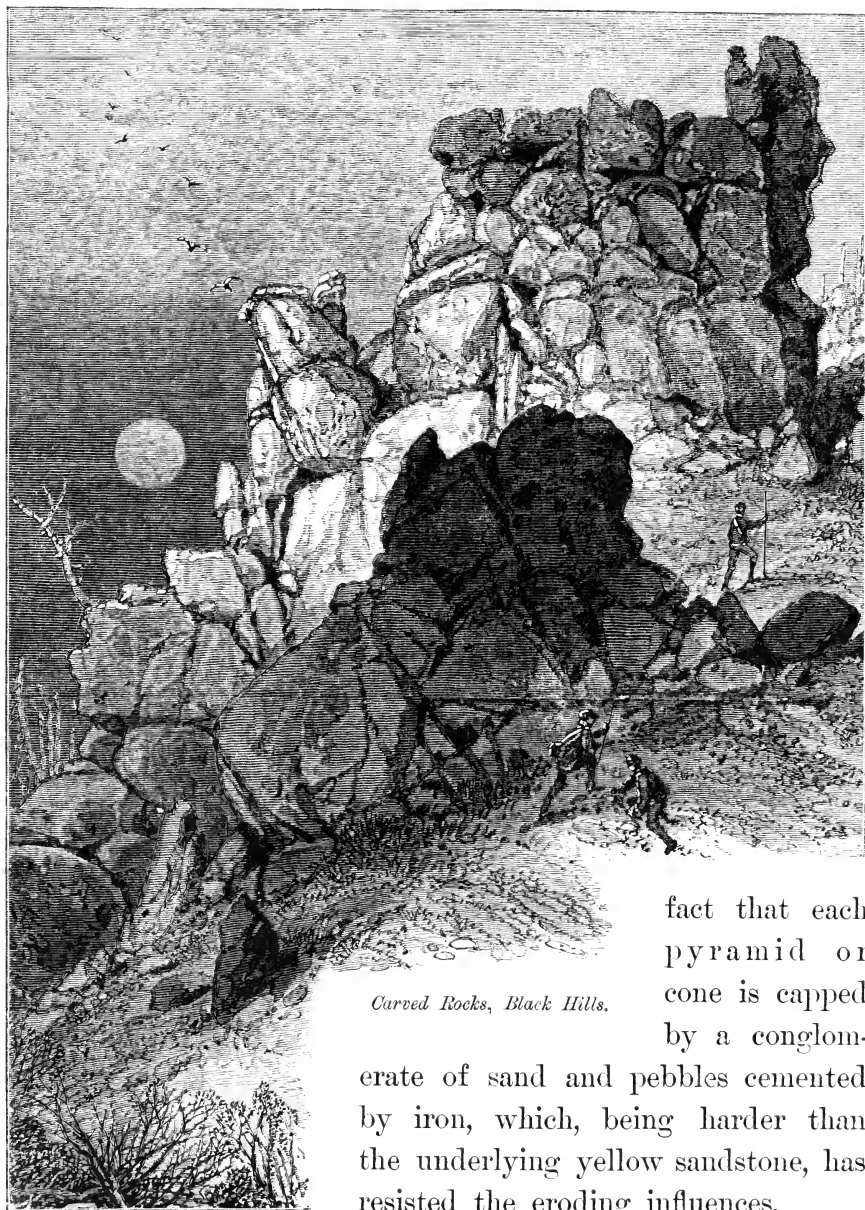
There is no joy the cup of which is so easily filled as that of wonderment, and there is no phase of Nature which so soon palls on one as this miraculous element of our Western scenery. It amazes, it excites the imagination, it sometimes (not often) touches by the beauty of its colors. But it does not refresh, nor awaken any depth of sentiment. It rather exhausts; and, when we have seen it without variation for any length of time, we feel with Hawthorne that meadows, the smooth and undulating pastures, the scented clover-fields of Iowa and Illinois, the farm-lands of the Connecticut and the Mohawk, with their tranquillizing aspect, are worth more than all the vagaries that Nature has ever set up. Where these odd formations exist, fertility is usually absent, and the former seem like the offspring of some abnormal mood, some vindictive bit of coquetry on Nature's part, or some incomprehensible ambition in the direction of artifice.

The first glimpse of this phenomenal element which, from its oddity, strikes one as being an individualizing characteristic of Western scenery, whereas it is, as all the world over, an exceptional one—the first glimpse of it that the traveler has is in Monument Park, on the Denver and Rio Grande Railway, some distance south of Denver. Here the eroded sandstones abound, like the handiwork of some fanciful race of goblins, who have twisted everything, from a shaft of rock to an old pine-tree, into an incredulous shapelessness, and here all the details of Caliban's mysterious island come back to one as in a dream. The resemblance of the rocks to men



Eroded Sandstones, Colorado.

and animals is not literal, but it is sufficiently vivid to enable an imaginative person to construct witches, giraffes, and many dissimilar and unrelated things out of these inchoate sandstones. Most of them look like sugar-loaves with plates or trays balanced on their heads, and the cause is found in the



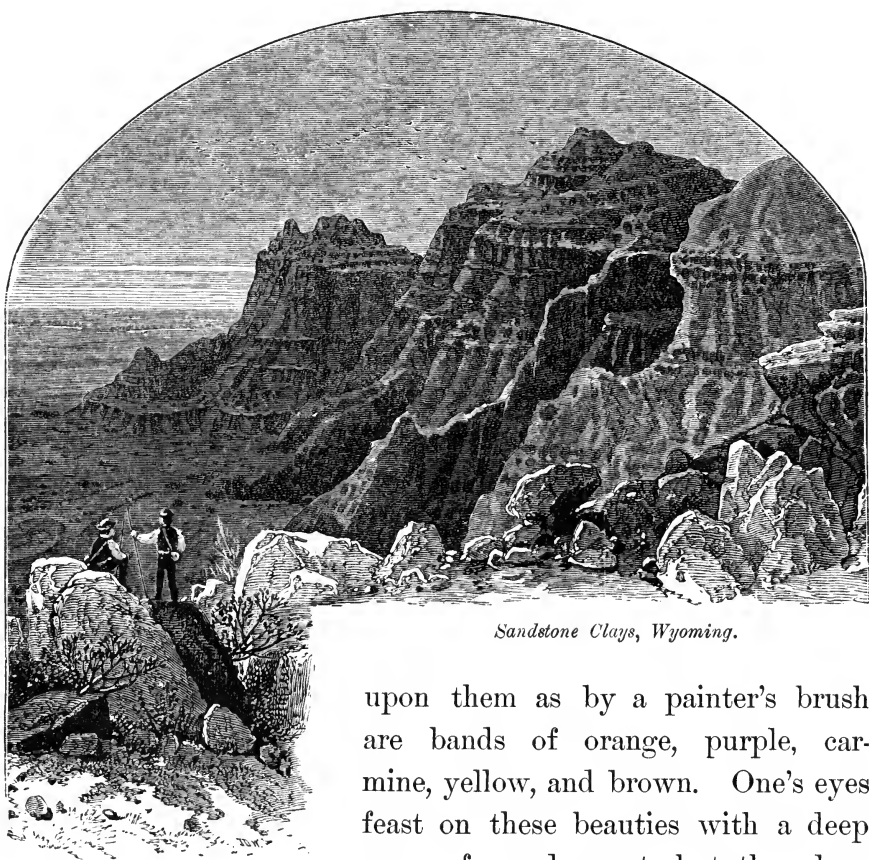
Carved Rocks, Black Hills.

fact that each pyramid or cone is capped by a conglomerate of sand and pebbles cemented by iron, which, being harder than the underlying yellow sandstone, has resisted the eroding influences.

Later, the same element of fantasy is revealed to the traveler as he sweeps over the summit of the Rocky Mountains at Sherman—a sort of rock masquerade, pillars of granite and sandstone which caricature the form of beast and human; circular and square towers that might have been part of a mediaeval stronghold, and preposterous creatures unlike anything else seen on earth or heard of. The geologist's explanation of them is, that they were once angular, cube-like masses which have been worn into their present form in the process of disintegration by exfoliation. Sometimes they are honey-combed like a worm-eaten piece of wood from the tropics; sometimes they are a yellow ochre in color, or a pale yellow tinged with green; again they are a vivid crimson, or the several strata are marked by many different tints.

A few hundred miles farther west on the Pacific Railway, at Green River, the formations are on a much larger scale, rising into tremendous cliffs and massive buttes, streaked with crimson and yellow, the shales showing, hundreds of feet below the surface, the impressions of fish, insects, and birds, buried in them millions of years ago.

Farther west still are the bad lands; and here it is difficult to convince one's self that the architecture as well as the decoration is not the result of human workmanship. Here spire uplifts itself above spire, the ground is split and held apart by cliff after cliff dividing plateau after plateau, and the landscape is enriched by miracles of color. The isolated pillars and obelisks are without flaw, the domes that cap some of the buildings are perfect demispheres, the flutings of the columns are of uniform depth and width, and spread



Sandstone Clays, Wyoming.

upon them as by a painter's brush are bands of orange, purple, carmine, yellow, and brown. One's eyes feast on these beauties with a deep sense of wonderment, but the pleasure does not endure, and we long for the placid meadows and cool woods nearer home.

The difficulties of mountaineering among the bad lands are in their friable and treacherous nature. They crumble under a man's foot, and the sun falls upon them with a scorching ardor which makes the least exertion painful.

As we have said, the ascent of cañon-walls is probably the most perilous of all Western mountaineering. The cañons

are classified by the surveyors as the "open" and the "box," the "open" cañon being a ravine with sloping sides not impracticable to the agile mountain-climber, while the "box" cleaves the earth with positive perpendicularity, and is inclosed on both sides by overarching cliffs or straight bluffs.

There are few better examples of the latter in all the marvelous West than Springville Cañon, in Utah. It lies deep down in the Wahsatch Mountains, which form the eastern boundary of the fallow desert that rolls in sere lifelessness to the Sierra Nevada—that desert which once held an ocean in its lap, the Great Salt Lake being the residue. Its general course is east and west, and it carries a small stream which finds rest in Utah Lake after a troubled passage through the mountains.

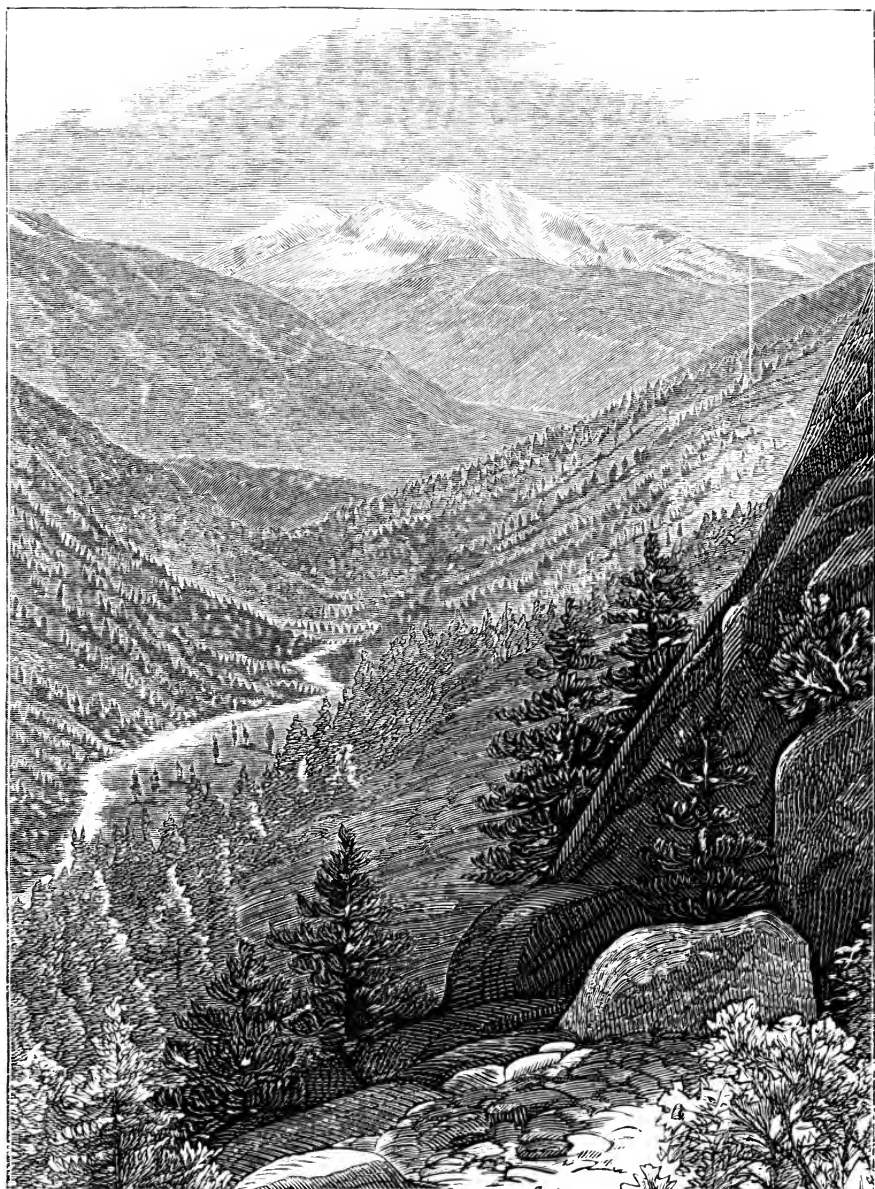
Troubled is not a strong enough word for the opposition that the little river meets in its course. Springing from a region white with eternal snows, the thread of water weaves its way over the boulder-strewn bottom of the Springville Cañon, and burrows between pinnacles and walls of rock, hundreds of feet high, roofed in by a narrow strip of unsullied sky. Here it meets with an obstruction that threatens to choke it altogether, and it spumes in rising anger; but, as its volume gathers, it overcomes the impediment and rushes on with a gurgle of satisfaction. There it widens and curls in smooth eddies, and the roughly paved bed is visible. Now it is possible to wade one's horse through it, and then, with a sudden plunge, it takes a greater depth, in which horse and rider might drown. Its moods are variable and the changes unexpected; it is muddy in

some places, and again it is beautifully clear; it is now wrathful and then momentarily tranquil, but lasting serenity comes as it pours itself into Utah Lake.

The latter is nearly four thousand five hundred feet above the level of the sea, and about three hundred feet higher than the Great Salt Lake. It is about thirty miles long and six miles wide, its shape being triangular, its water fresh, and the Utah Southern Railway running along its eastern side.

Standing on one of the pinnacles that bristle along the upper cañon-wall, the explorer sees such a sight as the imagination, unassisted by experience, can not conceive. The point of view is a chaotic pile of rocks carelessly thrown together by remote geological action—so carelessly, indeed, that some seem to be too gingerly set on edge or corner for a man's weight, but which have been so shaken into position by time that his weight multiplied a hundred-fold could not disturb them. A few dwarf cedars or pines creep out of the crannies, the Arctic explorers of the vegetable world, which aspire toward heaven in altitudes where the sun is disarmed and the wind is never still, stretching out their attenuated branches with heroic fortitude. The depth of the cañon causes a shudder as it is seen from the edge of the cliff; it is so great that the river has the appearance of a fine white line drawn along the bottom of the ravine, and, despite the brilliancy of the sky above, the atmosphere below is blue and misty.

A man standing up here is imprisoned in a vast fastness of mountains, and peaks that are ten or twelve miles away



An Open Cañon, Colorado.

seem to be within reach of an outstretched arm, the illusion being so perfect that one would expect to hear the rebound of a stone thrown at them.

But most awe-inspiring are the lateral walls of the cañon, broken into hundreds of sharp points, and occasionally shaped by some freak of the elements into resemblances of fortresses and other works of human architecture. In some places they are not vertical but concave, and ponderous ledges of rock overhang the recesses, keeping them in perpetual night. These ledges are hacked with terrible ruggedness, and the rocks are stained with delicate colors, such as mauve, pale green, and gray, by the weathering of long geologic periods. Vast masses of *detritus* tell interesting chapters of history, and appeal to one's awe by the record they present of the wonders wrought by agencies so impalpable and yet patient as wind, rain, and the attrition of dust. Things so simple as these are the cañon-makers, and as much the producers of the Titanic in nature as the throes and fires of volcanoes.

At the bottom of the ravine the sight is grander still. The voice of the river mingles with the rustle of the woods; a cloisteral gloom and privacy prevail on the brightest day; the enormous cliffs frown down, and just above them there is a dazzling strip of blue sky, which seems like a sapphire in a dark setting. When night approaches all the edges of rock that are turned against this sky, which grows very wan before the stars appear, are rimmed with a silvery phosphorescence, and when night is come the cañon is enveloped in a blackness indescribable.

The exploration of the Grand Cañon of the Colorado by

Major J. W. Powell is an achievement scarcely less notable for the pertinacity and courage which it required than the ascent of the Matterhorn by Whymper, and we reserve a full account of it for a later chapter. At nearly all times cañon-climbing is precarious, and occasionally we hear of an explorer surmounting a cliff thousands of feet high by worming himself up a fissure scarcely wider than his body by the pliant use of hands and knees. But more precarious than either sandstones or cañons are the crusts of lava that spread with millions of sharp, irregular, nail-like points over vast areas of country, and which cripple the men and animals that are trapped upon them.

We have stood upon a peak with foliage reaching up to its apex, and wavy grass and flowers mantling it with a tropical luxuriousness, and all below at one side has been also green and fertile, while on the other side there has reached out a dull gray, metallic field of lava, touched, perhaps, with an arid moss, but bearing neither grass, nor shrub, nor tree, and bristling with projections, some high, but most of them a few inches or less in length, and pointed like a spike.

Seeing it in advance we have avoided it, while another party of surveyors approaching it unawares have been caught upon it and compelled to cross it with disastrous consequences. In enumerating the characteristics of the mountains it would be an error to omit this element, which has led to many interesting adventures.

Finally, there are the peaks uplifted from the billowy plains, which spread around them like a primeval sea whose beating has been stilled by omnipotent opposition. A salient



"Box" Cañon—Grand Cañon of the Colorado.

thing about them is that the actual ease with which they may usually be attained seems still more easy, owing to the brilliancy of the light that falls upon them and the extraordinary lucidity of the Western atmosphere.

Once, when we were bound West by the overland train, and we swept through the smooth and pastoral valley that separates Weber Cañon from Ogden, the lateral ridges of the Wahsatch rose up before us in the strong light of the late afternoon, and, though wooded at the base, showed many glistening fields of snow along the crests.

"How long do you suppose it would take to reach the top?" we said to a young Canadian barrister who was traveling with us.

"Oh, I suppose," he said, "it might take a fellow about three hours," and he was much astonished when we told him that it had once taken us thirteen hours.

The summits, indeed, seemed very practicable. The swell after swell of ever-deceptive foot-hills, the forbidding escarpments that break the apparently smooth inclines, the vast masses of angular *detritus*, and the treacherous swamps on the intervening plateaus were invisible. To any eye unfamiliar with Western distances and mountain-forms, it would have seemed no more than a comfortable walk, with perhaps a little exhilarating climbing, from the valley with its farms and embowered streams up the softly outlined slopes to those pinnacles of gray rock streaked with the vaporous snows. That the peaks were actually thirteen hours distant bothered the young barrister very much, and as the train thundered through Ogden Cañon we offered him proof.

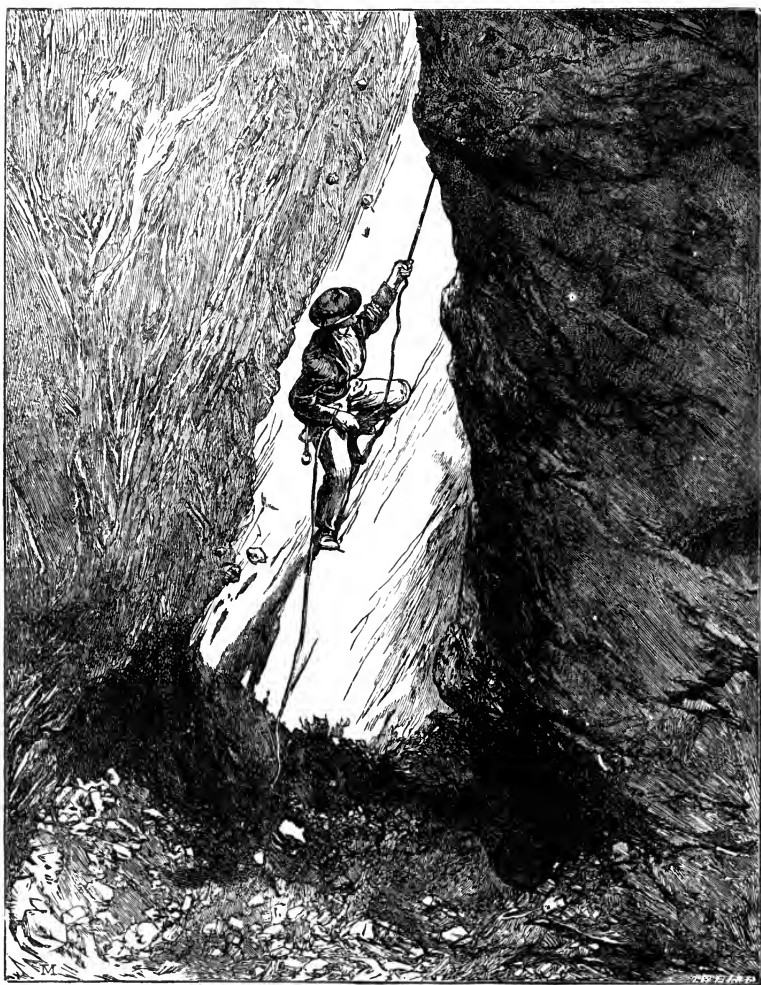
About two or three hours he thought would suffice for the ascent. This was our experience: We left camp in the valley one morning soon after five o'clock, and four hours later the peaks seemed as distant as at the outset. At mid-day our elevation began to be perceptible; the valley reached out below us sleepily, and the air quivered with heat; the foliage was twisted and dwarfed, and the shallow soil bristled with rocks. While the valley was so sultry, however, a nipping air made our double suits of winter underwear very comfortable, and gave us an appetite which at three o'clock we halted to appease with unleavened bread and bacon. That is one of the recompenses of the Western surveyor's life—the lunch eaten after severe toil, and when all around us there is a tremendous area visible which communicates to us a delicious sense of exaltation. The biscuits are munched in silence, and the unpalatableness of the bacon is disregarded in the sublimity of the view.

But we had not been long at ease when, chancing to look up, we saw that a cloud of singular density had suddenly fallen over the peaks, and sweeping toward us was a thick gray mist. Though the air had been cold, there had been scarcely any wind; but now the pines began to snap, the squirrels that had been brazenly incautious in their approaches to us disappeared, and there was a rustling movement along the surface of the mountain that agitated the fragments of bark and even the smaller stones.

The proverbial brevity with which Jack Robinson may be named was not allowed to us. We had not unstrapped our overcoats from our saddles nor thrown our *ponchos* over

the instruments when the fierce gale broke over us, and we were driven for shelter under an immense boulder. The wind almost lifted us off our feet; but, strong as it was, the rain fell through it in streams like a screen of silver wire. The inflexible pines were forced to yield, and the unelastic branches were bent and curled as though they were bamboo. We stood at the outlet of a basin inclosed by precipitous cliffs, with midway between them a more than usually erratic mountain-stream, which leaped and frothed against the rocks that bound it. It was full and impetuous before the storm broke, and a few minutes later it had swollen immensely, and seethed in a white fury down its course. The snapping of the pines, the hiss and splash of the rain, and the sullen voice of the stream became inaudible, however, in the peals of thunder, which seemed to come from the splitting of the pyramids and cliffs around us, and which seemed to re-utter and re-enact the awful ordeal of their creation, while the lightning laced with zigzag bars the black dome over the basin. Our cavalry overcoats were soaked, and transmitted the moisture to our under-clothing, but our discomfort was unheeded in the awe which the storm inspired.

After an hour the peaks were visible again, whiter than ever, penetrating a clear, blue sky, but the valley was overhung by a mass of cloud that completely hid it. Apparently there was only one bluff between us and the desired apex, but when we had scaled this we still found a cliff intervening. When the summit of the cliff was attained a brittle field of snow confronted us, and the snow led to a heap



Climbing Castle Peak.

of detached rock thrown together at every possible angle, over which we crawled on hands and feet. The top of the heap was the top of the peak, about nine thousand feet above the level of the sea. It was now nearly six o'clock ;

the moisture on the surrounding mountains reflected the sunlight, and off in the northeast we could see the storm drifting out of Utah into Wyoming.

Snow adds danger to all mountains. The field season of the Wheeler Survey in 1876 was prolonged until late in November, and toward the close a mountain in the Sierra Nevada remained to be occupied for the purposes of triangulation which was named Castle Peak. The whole range was white with snow, and the fallow sage-plains below were also patched with the same winter-white. Our nights in camp were of a kind to make us long for home—freezing, pitiless nights, when folds over folds of buffalo-ropes and blankets were ineffectual, and when the thermometers fell below zero. But they were not as arctic as the gray, benumbing mornings which held the earth in a palsy, never yielding to the mild ardor of the sun before noon.

On one of these mornings a small detachment of the expedition was sent out to ascend Castle Peak, the accomplishment of which task was necessary to complete the connection of other triangles already extended, and at the close of the day they made camp in a snow-field two or three thousand feet higher than the summit of Mount Washington. The second day presented greater difficulties. The mules wallowed in snow up to their necks, and occasionally disappeared in the heavy drifts, which were crusted with a frail surface of ice, and before the peak was nearly reached they had to be left behind, while the topographer and meteorologist pressed forward afoot with their instruments slung over their shoulders. Sunset was again approaching when these two adventurers

had attained a ledge some hundred feet below the apex, and, as sunset is the most favorable time for topography, they determined to see nightfall from the summit.

The peak is basaltic, and tapers to a fine point. That point is separated from the general incline by a sheer wall several feet high, and the only foothold is in a few crevices. The topographer's life hung on his finger-ends as he scaled this cliff; but he reached the top and then with a rope helped his assistant up, who was not quite as nerveless as himself. When the tripod of the theodolite was planted on the peak, the remaining space was so small that in moving from side to side the men had to pass under the triangular legs of the instrument; a misstep would have cast them into the abysmal ravines of the mountain.

Mr. Gilbert Thompson, the topographer referred to in the foregoing adventure, states that danger is more frequently encountered in the ascent of buttes and points of moderate elevation than on peaks. The terrible and exacting toil along a serrated backbone, until the crown of the *monstroso diablo* is reached, is never remembered or looked forward to except with feelings of abhorrence. It is thankless, without adventure and generally without a spice of difficulty, except the plodding toil, and there is nothing more cooling to the ardor of the climber than, after gaining a point apparently near the main peak, to see an unavoidable descent of one or two thousand feet before it can be reached, with perhaps a rise of twenty-five hundred after that. Experience allows three quarters of an hour to a thousand feet down, and one hour to a thousand up, which makes a serious inroad in the day;

and, if there is any reserve strength in you, it has to be judiciously expended. A man who can not climb for such an unexpected day of work, without food, and without being broken up by it, had better renounce the life of the Western surveyor.

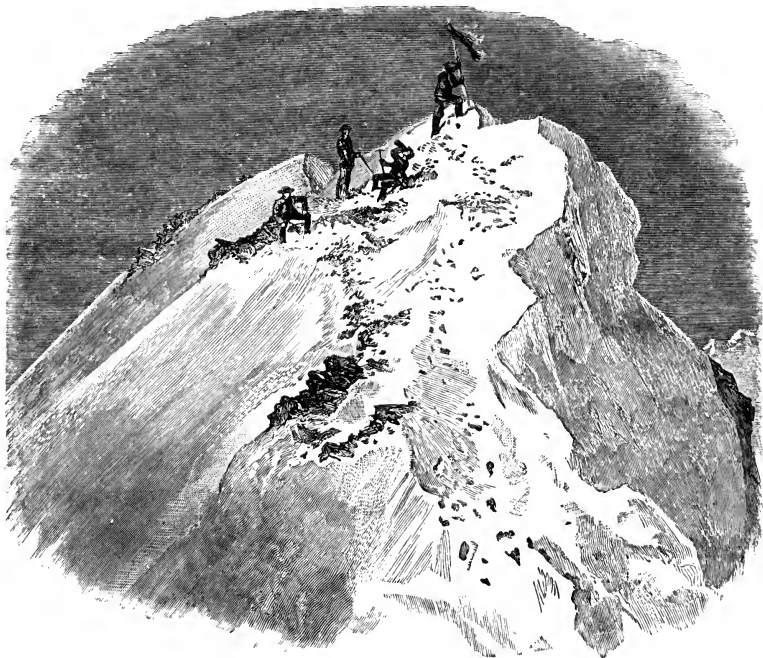
Sometimes heat and snow together combine to obstruct the mountaineer, and on the Colorado River in Arizona the humidity in the air is less than in the Sahara, and the rocks blister the naked flesh put upon them. The most difficult of the pure mountain-peaks, however, are considered to be in Southern Colorado and New Mexico, where from one point hundreds of peaks may be seen clustering like organ-pipes, each scarcely inferior in elevation to Mont Blanc.

In California a noteworthy feature of several mountains is the extraordinary abruptness of their rise. The hills near Camp Independence increase ten thousand feet in height within ten miles; Grizzly Peak, east of Los Angeles, springs up with similar suddenness; and a front of the Diablo Range in Arizona has over five thousand feet added to its height within five miles. Grizzly Peak overlooks the Coahuila Valley, which is below the level of the sea!

We have here briefly indicated a few of the inviting and repellent features of the mountains. No Alpine Club yet exists in this country; no daring adventurers seek difficulties in the ascent for the mere sake of the exploit. The explorations made have been in the interest of science or the pursuit of gold, and, instead of seeking peril by choosing unpropitious seasons or precarious ways, as the members of the Alpine Club do—even purposely selecting courses where danger is obvious when knowing of securer trails—the sur-

veyors and miners, to whom we owe most of our knowledge of the Rocky Mountains and the Sierra Nevada, have respected their necks; and, while they have not been daunted by obstacles, they have overcome them only as a means toward another end.

The adventures are less frequent, perhaps, than in the Alps; but the leaden fields of lava, the friable sandstones, the sheer cañon-walls, and the peaks, have caused not a few exciting episodes, some of which are recorded in the following chapters, for our boy explorers had a little experience with nearly all of these many kinds of mountains.



On the Summit.

CHAPTER III.

THE WAY TO DENVER.

IN due time the boys arrived at Omaha, and then they felt that the East was behind them and the new West before them—the land of plains, and mountains, and Indians, and miners. They were at the edge of the wild, open reaches which had been the scene of the most thrilling adventures; they were at the portals of the historic ground of the Comanche and Sioux, and their imaginations conjured up pictures of solitary lodges, projected against the long, fiery lines of sunset sky; of dark herds of buffalo breaking over the low landscape, and of long trains of emigrant-wagons, white-tented, carrying hopes and fears over the desert. But around them was a new, prosperous, and impatient American town, the germ of another Chicago, not at all uncivilized. They themselves were bidding good-by to the East in a most luxurious fashion. They had a drawing-room in a brand-new Pullman car. But the station at Omaha, full of conveniences as it was, had a more varied crowd in it than the depots in Chicago, or Pittsburg, or Philadelphia. The departure of the Pacific express really seemed to be of more consequence than the departure of other trains. The train itself had an im-

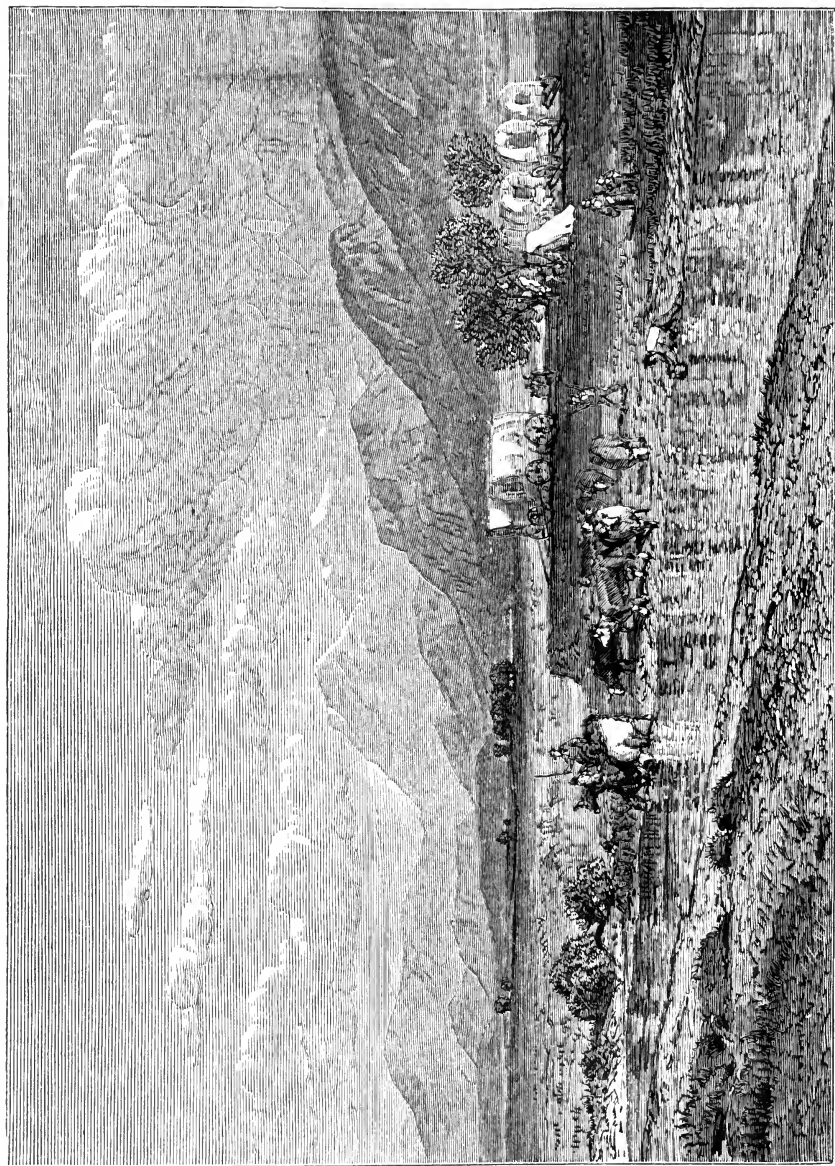
posing largeness and dignity—an extraordinary number of mail and express cars and “sleepers.” It seemed to be the business of the day to dispatch it. There was a mingling of many races and many costumes. There were army officers and soldiers in uniform; sleeping-car porters and conductors; brakemen; railway police; news agents; emigrants; plainsmen; fashionable tourists; commercial travelers, and Indians.

Before supper-time they had passed beyond the more cultivated part of Nebraska and were on the plains, over which the long train was winding like a serpent. No hills were in sight, nothing but the desert and the immense clouds packed against the extreme horizon. It was like a dried-up sea. Billow followed billow of land, speckled with rings and tufts of faint green and little patches of wild verbena. At intervals they passed a creaking windmill used in pumping, and, while the locomotive was taking in water, they, with most of the passengers, alighted to gather prairie-flowers. Once an hour or oftener, they came to a little town with a white church and a school-house prominent among its buildings. They saw no Indians, no buffaloes, and not even a prairie-dog.

“The plains are a humbug!” said Bob Edge, disappointedly.

But as they watched the sun go down and night come drifting over the desert, with a thunder-storm in its van, their hearts were touched by the sad grandeur of the scene.

The train moved along easily, and when the lights were lit the drawing-room cars looked very cozy. It was like the saloon of an ocean-steamer in pleasant weather. Most



The Rocky Mountains, from the Plains.

of the passengers seemed to know each other, and treated one another with almost affectionate confidence. Among them was a young earl in search of sport; a consumptive man who had left New England to try Southern California; an Australian merchant; a millionaire of the Comstock lode; a gentleman going to take charge of the consulate at Tahiti; and a brown stock-farmer. There were travelers bound over this iron pathway to Vancouver's Island, to Chili, Peru, and Mexico, to the Sandwich Islands, to Japan and China, to Alaska, and to Siberia.

One of them was a good-natured and very pronounced Englishman, whose dress, face, and accent made him unmistakable. Tom Smart and he stood together talking on the platform of the last car and watching the last bar of crimson light narrowing in the west.

"I see you are English," said Tom, at last, in reference to some pointed remark which his companion had made. The latter was as much astonished as if Tom had exhibited the faculty of clairvoyance.

"Why—aw—how on earth—aw—did you guess that? I cawn't understand how you Americans find out that I am—aw—English. A few moments awfter I had lawnded a little boy in Broadway offered me an evening papah. 'Here yar, sir,' he—aw—said, '*London Times*, lates' 'dition.' Now, I cawn't see that I am—aw—peculiarly English."

He was accompanied by a portly, red-faced gentleman, who proved to be a British army chaplain, and who entertained them with accounts of the Zooloo war in South Africa, whence he had recently returned. The chaplain, also, spoke

with a pronounced accent. Referring to one of the battles in which he had been, he said:

“I heard one soldier say to another, ‘Wait until we have a battle, and then you’ll see the old parson run.’ Well, one day, by Jove! the blacks surprised us, and—ah—most of our men were panic-stricken. I had a narrow squeak. Six of the black beggahs attacked me at once—six, sir! I killed four, and the other two had me in a cornah. I received the assegai of one in the shouldah. The other fellow had his assegai poised and would have—ah—dispatched me if my friend Majah Venables had not at that moment cut his head off, clean from the shouldahs, with one well-directed sweep of his sabah. When the fight was ovah, I heard the same man who had expected me to run, say—ah—to one of his comrades, ‘Why, by Jove! the chaplain’s the bravest of the lot.’”

The chaplain’s talk was principally of salmon-fishing, fox-hunting, and various sorts of adventure.

“Pretty jolly sort of clergyman that,” quietly said Peter, when the boys were alone.

There was another passenger who amused them a good deal, a brisk little commercial gentleman, who carried with him an enormous luncheon-basket. He was always present at the restaurant-table when the train stopped for meals, but between hours he paid great attention to this basket, which contained cold roast chicken, slices of ham and tongue, a little jar of pickles, condiments, knives and forks and napkins.

“I never travel without one,” he said, patting the basket fondly, after having asked Tom to share some of the ham

and chicken with him—"never, sir," he repeated. "I come over this road twice a year, and I always bring a basket along with me. 'Tain't safe without. I was snowed up on the divide once and nearly starved. Had nothing to eat for two days. Now I always bring one, just as I'd bring my traveling-cap. Liefer'd be without my boots than my basket," he added, cramming a large piece of chicken into his mouth.

"But there is no danger of being snowed up at this season," said Tom.

"No matter; it's always wise to be prepared."

Had he kept the contents for an emergency, his precaution might have seemed reasonable, but he soon emptied the basket.

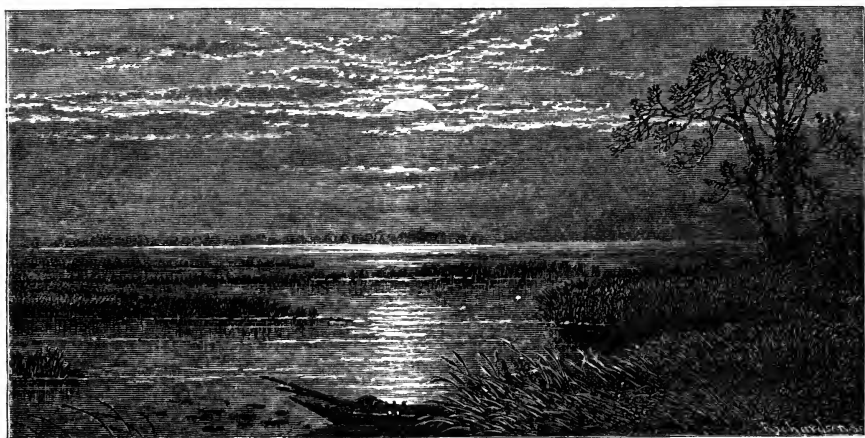
"Yes," he said, with a satisfied sigh, "it's wise to be prepared."

But it seemed to Tom that, if the train should be snowed up before he had a chance to replenish his basket, the benefit of his preparation would not be apparent except in his weight.

"It isn't gluttony; it's wisdom and the climate of California combined," said Peter.

On the next morning the scene was the same as on the previous night. There was the same height of sky and openness of view. Perhaps the plains looked whiter and more desolate. The settlements were smaller and farther apart than they had been. Once or twice the Platte River was seen slowly traveling on its long journey from the Rocky Mountains to the Missouri; and moving at about the same speed as the river were occasional trains of emigrant-wagons in the dusty road at one side of the railway-track. Plenty

of prairie-dogs were also in sight, sitting and whisking their tails on the tops of their mounds, and in the distance a few specks of white were discovered now and then which the experienced passengers declared to be antelopes. Several miserable-looking Indians were quietly riding on the front plat-



The Platte River. from the Plains.

form of the baggage-car, a privilege granted to their race all along the line of the Pacific Railway. Once the boys saw a buffalo, a tame calf, peaceably grazing with a herd of domestic cattle.

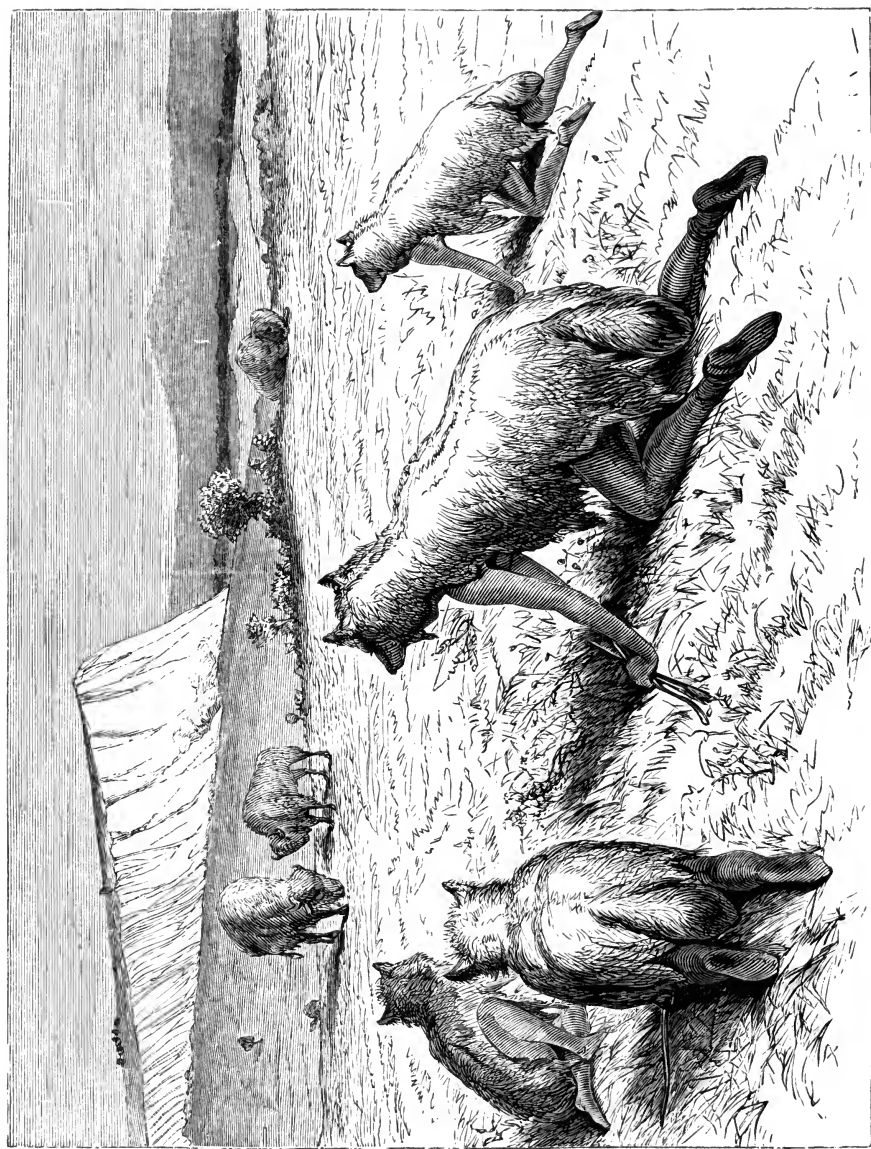
Like the Indian, the buffalo is disappearing from the plains. Fourteen years ago it was not uncommon, according to the late Mr. Blackmore, for a train to pass through herds over *a hundred miles* long. Now it is rare that one is seen. They are ruthlessly slaughtered for their hides by both whites and Indians, and their bodies, which, if properly cared for, might be sent East as food, are left to rot.

The Indians have a curious method of hunting them by masquerade. They dress themselves up as wolves, concealing their own heads and bodies under the heads and bodies of those animals, and thus disguised they creep in the midst of a herd to a favorable spot, where they can use their rifles or arrows to the greatest advantage.

At many of the little stations which the train passed, there were dealers in robes and handsomely mounted buffalo-heads. There were also small boys with prairie-dogs for sale, and at the cigar-counters in the eating-houses there was usually an assortment of curiosities. Bob Edge looked at them wistfully, and fingered the bills in his pockets. He was sorely tempted to buy.

At one station, a miner, who had been visiting his relatives in Rhode Island, and who had been spending his money profusely, treated all the Indians who were riding in the train to tea, which they sipped and smacked their lips over with great gusto. At the same time he helped himself to a bottle of whisky, which the Indians would have much preferred.

Long before it was time for the mountains to appear, the boys, and many of the other passengers, were on the lookout for them. Heads were put out of the windows, and bodies swung out from the platforms. "There they are!" cried one eager tourist; but what he saw was a bank of clouds. Several false alarms were given before they appeared—a solemn line of blue peaks, white at the top, with masses of vapor breaking over them. They were still far off, but they seemed to be quite near.



Indians in Wolves' Clothing.

Then the train entered a snow-shed, and passed between the fences built to keep the snow from drifting upon the track. At about noon it arrived at Cheyenne, where the passengers for Colorado left it and took a branch line for Denver.

Cheyenne is one of the mushroom towns of the plains. In July, 1867, there was one house in it; six months later there were three thousand houses. Building-lots which sold for five dollars one year, were worth five thousand dollars the next year. The crowd in the station was like that at Omaha, a mixture of civilization and barbarism. There were fastidiously dressed tourists from Fifth Avenue and Beacon Street; long-bearded, sleepy-looking miners with blue shirts and trousers tucked into their high boots; Chinamen with bamboo hats, like inverted wash-bowls; pushing young cattle-farmers from the ranches north; lazy and amiable-looking Indians, draped in blankets of scarlet and blue; ungraceful squaws, begging for pennies; and groups of officers and soldiers from the adjacent fort. The army chaplain left the train here with his English friend, and Tom saw him superintending the disembarkation of his baggage, which made a pile about eight feet high, in which there were fishing-rods, gun-cases, and a pair of beautiful Irish setters. He was most polite to the boys, and cordially bade them good-by.

"I am going to have a shot at—ah—the big-horn, and maybe I shall be fortunate enough to bag one of your famous grizzlies. Capital fun, you know—and I've an idea that we may be able to get an elk or two. Afterward we propose to strike south for buffaloes."

Before the train entered the depot, the little gentleman who was so careful about his commissariat jumped off, and ran in ahead of it. He was again first at the restaurant-table, and, having eaten very heartily there, he made at once for the lunch-counter, from which he refilled his precious basket with antelope-steaks and cold prairie-birds.

"You see," he said, noticing Tom and again patting the basket, "you ain't going to catch this weasel asleep; no, sir!"

The western-bound train at last departed, to continue for three more days its long journey toward the Pacific; and soon afterward the Colorado train also left the dusty and half-savage little city of the plains behind.

The way to Denver is southward over dreary plains, which at the end of winter are strewn with the bleached bones of the cattle that have perished in the storms. The mountains are in view most of the distance, and the boys sat quietly watching them. In the north they could see Long's Peak, and in the south, fully a hundred miles off, Pike's Peak. The range in between them looked like a massive and impregnable wall with a saw-like edge, silvered with snow. Nearly sixty of these mountains are more than thirteen thousand feet above the level of the sea, and more than two hundred of them are five thousand feet higher than Mount Washington. Probably there is no other part of the world, accessible to the traveling public, where such a wilderness of lofty peaks can be seen in one view.

A notable incident happened to the train before it reached Denver. It was stopped by grasshoppers. A cloud of these disastrous insects had dropped upon the track, and lay so densely

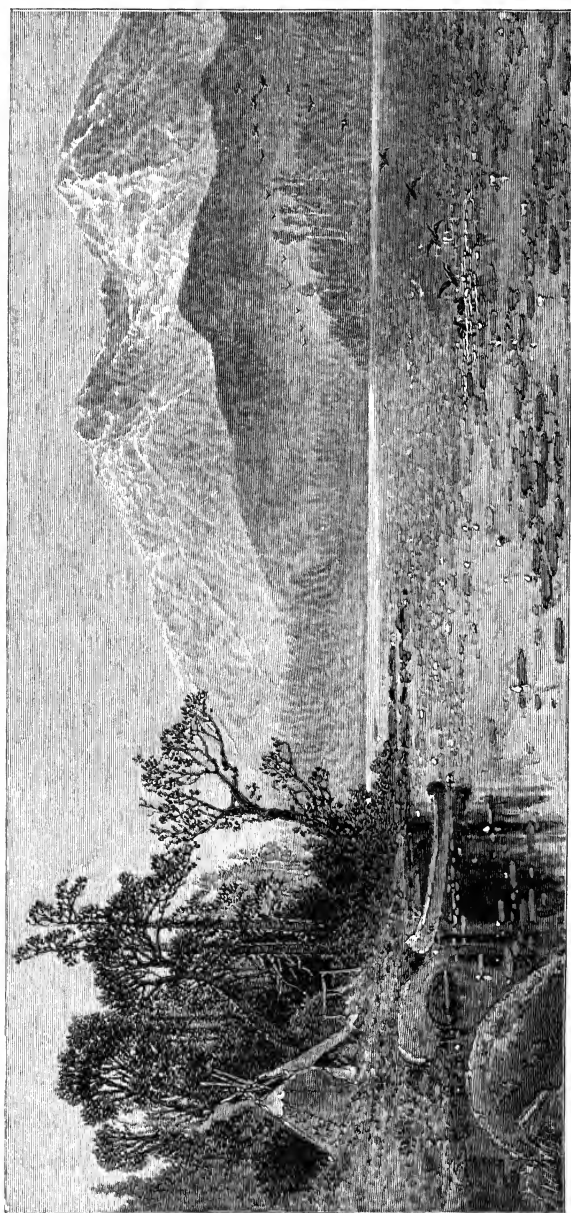


Treated to Tea.

upon it and upon the surrounding ground that they clogged the wheels of the cars and the locomotive. The earth was black with them, and it was impossible to put one's foot down without crushing a score of them. Not until extra steam had been put on could the train proceed.

Our young friends did not propose to linger in Denver, that bustling city among the foot-hills. They were impatient to be out among the peaks which loomed up in the west with a beauty that constantly changed as the sunlight fell upon them or was withdrawn. But they had to remain a day or two to complete their outfit.

The lieutenant had recommended to them a packer named Dave Mears, and had written instructions to him, telling him what they proposed to do and what they would want. Dave met them at the station, and immediately placed himself in their good graces. His knowledge of all that appertains to camping-out—to trails, mountains, *burros*, and pack-mules—was encyclopedic. He had been “a boss packer” under Lieutenant Wheeler, and a master of transportation under General Crook. He was a great, simple, good-hearted fellow, who liked the idea of the boys' expedition, and entered into their plans with enthusiasm. Tom consulted him in all things, and left the purchase of pack-animals to him. It was decided that there should be three of these, and an Indian pony for each member of the camp. The number of persons had now increased to five, as Dave had engaged for an assistant packer and cook a very talkative and friendly colored man named Greene Terrill. Greene was as black as broadcloth, but his dress was a net-work of tatters; the broadcloth was



Long's Peak, Colorado.

only in his complexion. He had been in the field with Dave before, and the latter declared that there was not a cook between the Yellowstone Park and Fort Stanton who could match him.

"Why, I've seen him serve *porched* eggs for breakfast when our camp's been snowed up in the San Juan, and it's been as much as we could do to keep the fire goin'. Yes, sir, when it's been snowin' and blowin' fit to take your head off. There ain't no such cook as

Greene Terrill anywheres, you bet. He engineers a mess beautifully. Why, that thar' darkey's beans just beats anything I ever tasted, and I'm from Boston; leastways, I was from Boston when I fust come out here."

Greene's face had but one expression—a grin—and his tongue wagged like the pendulum of a clock. Whether he had a listener or not, he talked on volubly, and his own conversation seemed to afford him no end of amusement.

The shops of Denver were full of attractions to the boys.

"It is the least civilized and at the same time one of the most civilized places we have been in," said Peter, who was always spoken of by Tom as "our special correspondent."

"Perhaps you will have the kindness to explain yourself. Your brilliance dazzles me," unkindly observed Mr. Bob.

"Certainly," said Peter, who, though shy, could be stung into anger. "Though it is simple enough, I am willing to make an allowance for your intellect. I mean that one finds in the shops all the resources of extreme civilization—all in the way of luxury that you would find in New York—and at the same time all the rude necessities of border life. You look into one window and see nothing but the implements used in wresting existence from more than half-savage Nature; you see fire-arms, bowie-knives, mining-tools, and buckskin and canvas clothing. You look in another window and find nothing but fine and costly fabrics, and the latest fashions. The striking feature is, that the trade seems to be equally divided between the latter and the former. So, too, in the streets, half the people look like those in Broadway

and half as if they belonged to a mining-camp. To me, this contrast is very interesting."

"Thank you for your explanation," said Bob, "but I guess you'd better get into the field just as soon as you can. Your language is too fine, and you want to have some of the eloquence rubbed off."

Peter treated this with the silence it deserved.

Mr. Bob himself had been making a study of the Denver windows, especially of those which contained the bowie-knives, fire-arms, and buckskin clothing. One day he asked Tom, who was the paymaster of the expedition, for a sum of money for which he had no apparent need, and a few hours later a large parcel was delivered at the hotel for him which he immediately took to his room. Tom's room was next to his, and after some time he heard him go to the door and open it as if to come out, and then suddenly shut it and lock himself in again. Half an hour later Tom met him in the hall.

"Been buying something, Bob?"

"Yes," said Bob, with some embarrassment.

"What?"

"Oh, not much," he unsatisfactorily replied, with still greater embarrassment.

But in the evening the nature of his purchase was discovered. He came sauntering into the hall, wearing a pair of buckskin breeches of a pattern much more dazzling than Peter's eloquence, which he had criticised. He made a comical effort to look unconscious of the novelty of his attire, but he only succeeded in showing that it lay heavy on his



An Old Enemy of the Buffalo.

mind. Far more self-possession than he had was necessary to carry such garments with any degree of grace. They were in the main a cream-color, but the outer seams of the legs were edged with a fringe of blue and vermilion clippings. They were narrow at the knees and spread over the foot like a pair of gaiters. Down the leg-seams, also, were rows of hollow nickel buttons, which jingled like distant sleigh-bells.

Tom and Peter were amused as they saw him coming toward them, but they refrained from smiling, out of consideration for his feelings. Sitting on one of the benches, however, was a slouchy miner, who immediately observed Bob, and cried out:

"Cæsar, look thar! Signor Montegrissimo, the whirlwind rider of the Staked Plains. Hoop-la! Don't ye know him?" he pretended to whisper to the man sitting at his side; "why, he b'longs to the cirkis!"

"A tenderfoot, I guess," said the other.

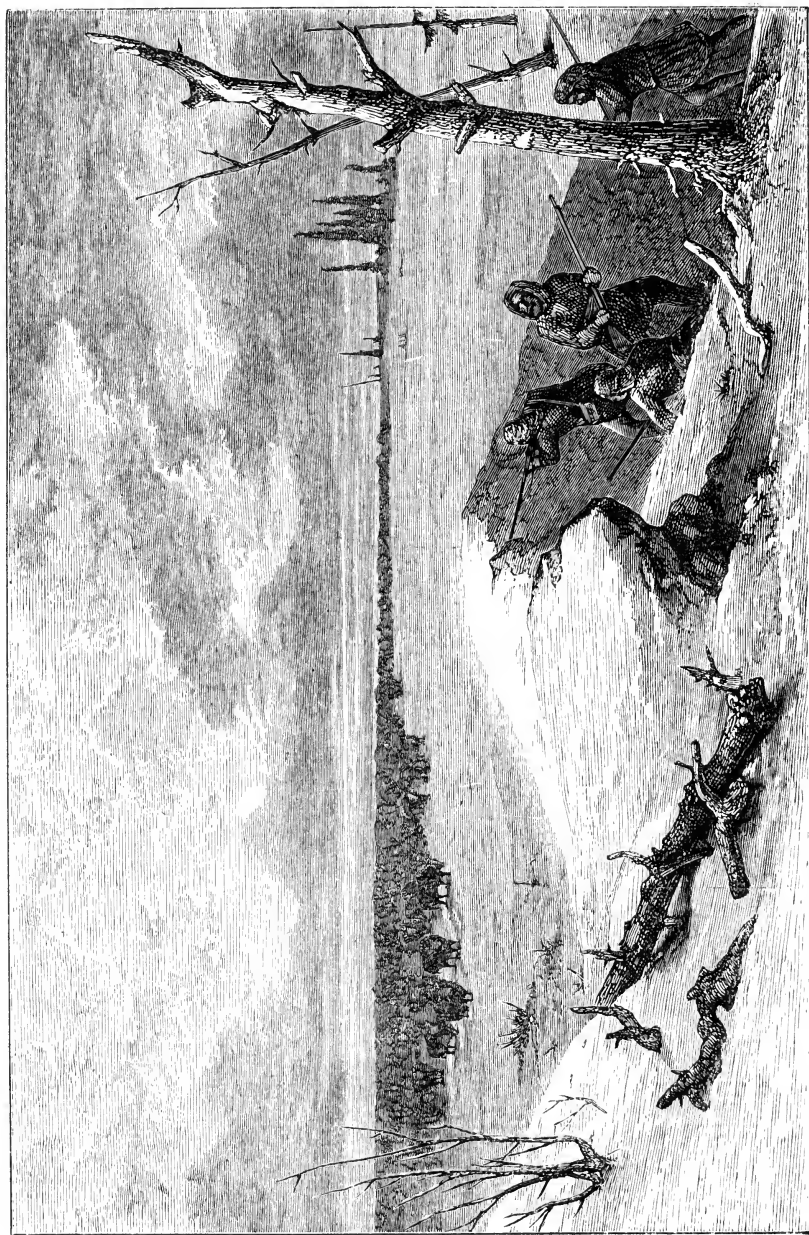
There was a loud laugh in the hall, and poor Bob colored up angrily. He made a step toward the miner, but wisely abandoned his intention and spoke as if unconcerned to his friends, who did not even hint that there was anything unusual in his appearance. He wore the buckskin breeches bravely for the rest of that day, but they never reappeared afterward. It was a subject on which he was naturally sensitive, and Tom and Bob respected his reticence.

When in the morning they left town with their outfit they were dressed in the simplest and most sensible way. They wore old woolen suits, blue-flannel shirts, strong boots,

and soft hats. Dave led one of the pack-mules and Greene another. The third mule obediently followed, and the boys, comfortably mounted, marched on at the head of their little train. Their appearance was so business-like that the remarks made by the persons who watched their departure were complimentary. One guessed that they were government surveyors; another, that they were prospectors; and another, that they were going to locate a new railway. There was nothing in the appearance of themselves or their outfit to indicate that they were not veterans in field-life.

Their objective point was Gray's Peak. They might have easily reached the foot by taking the railway to Georgetown; but they were not in a hurry, and, rather than skim the country, they preferred the slower method of observation which they had adopted. They were soon off the sandy plains and among the hills. The fine, clear air filled them with joyousness. They felt all the time as if they had just come out of a sea-bath, and were tingling with the subsequent scrubbing.

The first night in camp was a new experience for Bob and Peter, and they approached it with some uneasiness. They did not feel quite at home, lying on the ground, with no roof between them and the stars. They were a little afraid of rattlesnakes and Indians. Would it not be safer, they inquired, to have a watch, in which each member of the camp could take his turn, to guard against the latter? And in regard to rattlesnakes, was it not very likely that they would crawl into the beds, attracted by the heat, and fatally bite the occupants? They were somewhat reluctant



Buffalo-hunting before the Railway.

about going to bed, and, standing about the camp-fire, showed a curiosity as to the habits of the serpents, which was not fully satisfied even when Dave had told them all he knew on the subject. Before retiring each drew around his tent, like a magic circle, a long *lariat* or halter, made of horse-hair, which is said to repel the snakes by tickling them as they attempt to crawl over it.

When they awoke in the morning, they sprang up in haste and threw open their blankets, expecting to see a viper coiled up within them—but a few grasshoppers had been their only bedfellows; and when they carefully shook out their boots before putting them on, a precaution which they had learned from story-reading, nothing fell out but a toad and a field-mouse.

Once in the night Peter had been heard gasping in a dream-struggle with some invisible assailant.

“What’s the matter?” cried Tom.

“Indians!” murmured Peter, unconsciously.

“Well, don’t let them go!” replied Tom, turning over to resume his own sleep.

“Scalp ’em!” growled a deep voice out of Dave’s blankets.

But Nature soon wins the confidence of those who seek an intimacy with her in out-door life, and, on the third morning, Bob and Peter ceased to shake out their boots; on the third night they ceased to be apprehensive of Indians, and at the end of the week they ceased to miss a white table-cloth at meal-times, and declared that eating off the ground in the shadow of a tree, with the scent of the pines in one’s nostrils, and a brook of melted snow within reach, and the



Tom's Doe.

mountain air fanning one's face, was the perfection of living. What if the grasshoppers sometimes did jump into the tea, and the hornets claimed more than a fair share of the bacon, and the dust made the tomatoes look as if the pepper-box had been upset over them? These were matters beneath notice, when a Colorado appetite was waiting to be appeased. Greene's cooking bore out all that Dave had said in praise of it; it was continually producing masterpieces of the savory art.

The food which the boys had provided for themselves was of the plainest sort, and they depended on their guns and fishing-rods for luxuries. But they were so lucky that they had venison upon their table on the second day out.

Tom had been riding ahead and had entered a dense grove of cotton-woods, when he saw a doe browsing a few yards distant. The shot would have been an easy one, but, before he had time to fire, she perceived him and bounded away. She struck across an open space, however, and remained in sight, so that with a second shot he was able to bring her down.

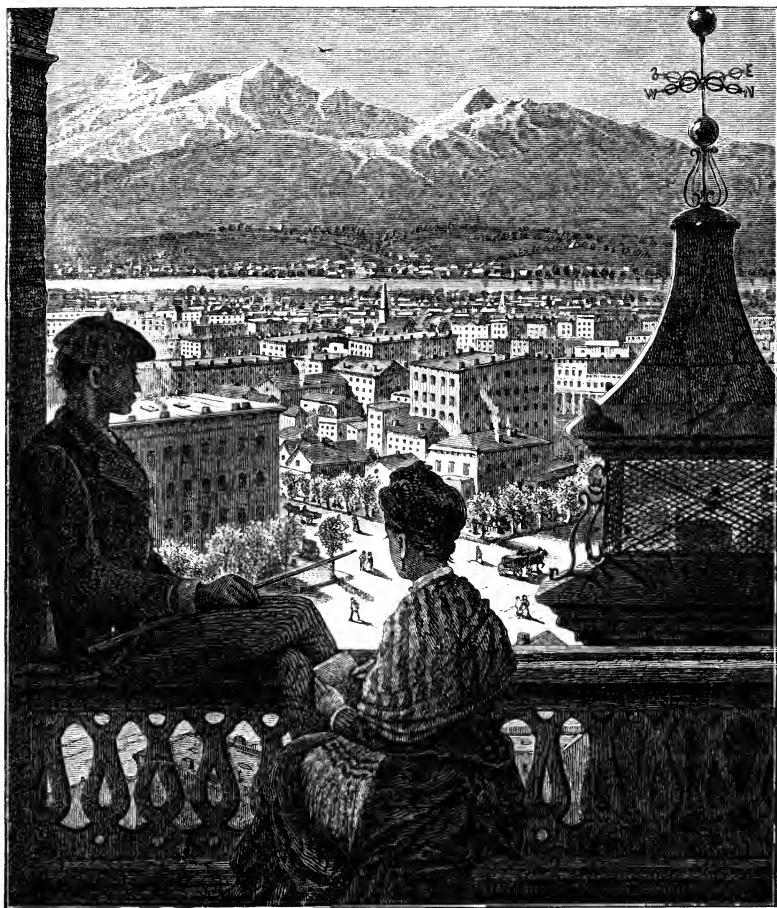
The luck did not stop here. It brought to their table many sorts of game; and how they fared, and how they were satisfied at the end of the week, may be judged from a letter which the "special correspondent" sent to his paper, contrasting their way of seeing the country with that of the ordinary tourist. Referring to his own party, and impersonally describing some of their experiences, he wrote:

They are absolutely independent of all the world: they travel for days together without meeting a stranger; they

enter valleys wherein the primitive sanctity of Nature still remains; they pitch their tents on summits known only to surveyors, and they have all the exhilaration of discovery, for what they find has no mention in any guide-book. There are long, vitalizing days spent along the margin of lakes whose boundaries are the granite and basaltic peaks of the main range, and whose surface is silvered while the sunlight lasts by the quivering reflections of snows that never melt—lakes which yield them trout by the score; other days there are of swift-flying cloud and high winds, when all the earth seems to be in visible motion and the pulses beat with eager responsiveness—days in wildernesses of pine where it is always afternoon; days in the silent and spacious “parks,” where the verdure is soft and abundant; days on the peaks themselves; days of toil ending with views of unutterable splendor, and nights so calm that the throbbing of the stars seems audible. It is one thing to stand on a summit like that of Pike’s Peak, which has been trodden down by men’s feet—which nearly every day in summer is the resort of excursion-parties—and it is another to gaze out upon a vast country from an apex which may never before have been overcome, and upon which, at least, no sign of man exists. There are a grandeur and exaltation in the isolation, and the vesture of earth seems to fall away from us in the contemplation of it.

After the toil and sights of the day, moreover, comes repose of a sort for princes to envy. They lie upon a bed which hurries them into sweet and immediate sleep. They dine on brook-trout and venison-steaks, lunch on cold grouse,

and sup on toasted quail and potted rabbit. When we think of them, we decide at once that this is the best way of seeing Colorado; and, one way or another, Colorado ought to be seen by every American.



Glance at Denver from a Church-Steeple.

CHAPTER IV.

THE FIRST ACCIDENT.

ON the eighth day, having made a *détour*, Tom and his friends reached Georgetown, which is five thousand feet nearer the sky than the glacier-walled valley of the Chamouni; higher even than the famous hospice of St. Bernard. An amphitheatre of hills, cliffs, and mountains surrounds it, and its streets are divided by a creek, which winds through it like a ribbon of burnished metal from the mountain's silver veins.

While here the boys visited Chicago Lakes, in the basins on the slope of Mount Rosalie, nearly twelve thousand feet above the level of the sea, and two thousand below the summit. They also spent a day at Green Lake, which is as clear as crystal—so clear, indeed, that objects eighty feet below the surface are visible. The water is a bright green in color—this effect being due to a coppery sediment on the rocks at the bottom. A dense growth of pines fringes the edges, and innumerable peaks cluster around, their snows sometimes seeming to be reclaimed by the lowering clouds that sweep them.

Bob bore his companions off to see some of the neighbor-

ing mines, and he took extra pains to make their history and working clear to the "special correspondent."



Green Lake, Colorado.

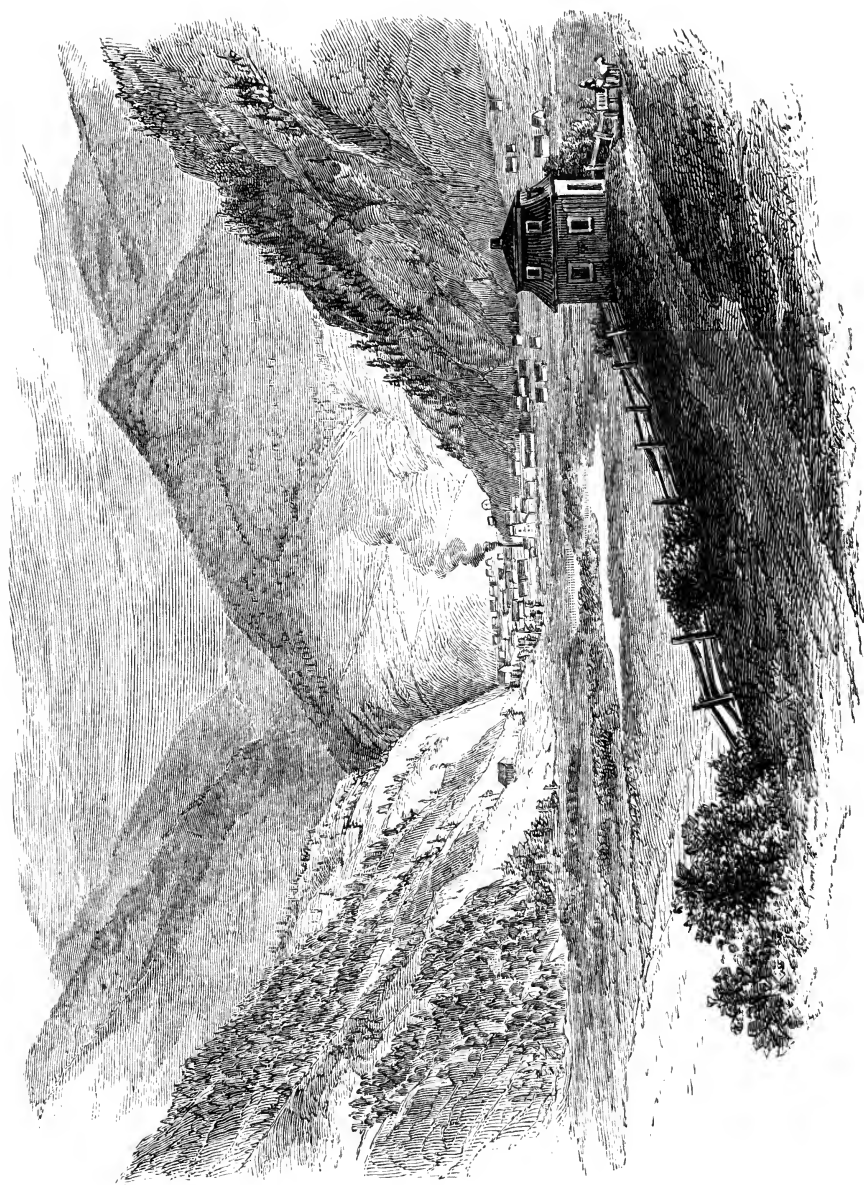
Occasionally they had met on the way a solitary miner, accompanied by a little donkey, upon whose back were loaded

all his possessions, which oftener than not consisted of a gun, a pick-axe, a spade, a pan, and a sack containing coffee, sugar, flour, and bacon. This was a prospector, one of those adventurers who wander from place to place in search of the precious metal buried in the mountains, camping out alone, and often spending wearying months without reward.

Nearly every one who stays long in Colorado is tempted to explore the mountains and to stake off a claim. Sometimes the reward is a fortune; much oftener the laborer finds himself poorer at the end of several years than he would have been had he devoted himself to a trade. The prospector may look in vain for promising signs in the rock. He may be killed by Indians, or perish in a storm. He may return to Denver or Georgetown starving, without having had any luck at all. But most of the mines in Colorado have been discovered by such as he—by solitary adventurers who would not have been disappointed if they had found nothing.

A prospector need not be an educated man, and that he has never heard a lecture or read a book on mineralogy in his life is not against his chances of success. There are certain signs in the rock which he knows well, and looks for with a sharp eye.

If he finds "blossom-rock," a yellow, spongy mass in the common gneiss, he unloads his donkey and stakes out his claim. That night he probably sits before his fire eating his slice of bacon and bullet of dough, and drinking his coffee, with the spirit of contentment lighting up the little world of



Georgetown.

his ambitions as the sun lights up the great world of mountains around him.

But the blossom-rock is soon exhausted, and machinery is needed to develop his mine; water, too, invades the mine and drives him out. Now he takes others into partnership with him, or sells his claim to some capitalist. Lumber and machinery are brought over the mountains, buildings are erected, shafts are sunk, levels, drains, and tunnels are excavated, and true mining is thus begun. The lode may yet be only moderately successful, and return but a small dividend on the capital invested in it. It may, on the other hand, make millionaires of all concerned in it, and the man who sat alone that night on the slope of the mountains, with the newly discovered blossom-rock in view and his pick-axe lying before him, may see a rich town spring up, of which he is the founder and the owner.

It is a game of chance, and, like all gambling, it breaks many hearts and wrecks many lives.

Bob, nevertheless, looked carefully for blossom-rock, and, perhaps, if he had lived among miners and depended more on the shrewdness of his observation than the extent of his reading, he would have found it.

When they had been in Georgetown three days, and had seen most of the sights in the immediate neighborhood, they departed to make the ascent of Gray's Peak.

It was a lovely Western morning, so clear that there seemed to be no atmosphere at all. Every object was notched with peculiar distinctness against the blue sky. The mountains shone with dazzling whiteness.

A good deal of snow was still visible, but not enough to discourage them, and the people at Georgetown assured them that they would find no unusual difficulty in making the ascent. They followed the trail leading westward out of the town, and constantly enlarged their view as they zigzagged upward. Now they passed through a dark grove of pines, and then through a thicket of cotton-wood, with its tremulous and brilliant foliage and silvery bark. The wind increased as they mounted higher, and sounded like the roar of falling water.

All were in the best of spirits, especially Mr. Bob. He was impatient with the progress of the others, and pushed on ahead of them, jeering at them as he sat on some point far above them, and waited for them to overtake him.

Though not a bad fellow, Mr. Bob had a high opinion of himself, and was fond at all times of laughing at others. Peter was modest, and entered upon the expedition as a self-confessed greenhorn, ignorant but willing to learn. Mr. Bob was likewise "green," but he did not admit it, and, on the contrary, assumed the manner of a veteran. He laughed at Peter's inexperience, without taking account of his own, and attempted to instruct him on matters of which he himself knew nothing. Peter was always willing to accept the guidance of Tom and Dave; but Bob preferred to be independent.

Once, when he was riding with a loose rein over a plain in which there were many gopher-holes, Dave warned him to be careful. "I guess I know what I am about," he impolitely replied; but, whether he knew it or not, a minute or two later the fore-hoofs of his mule sank in the earth and he was thrown

heavily out of his saddle. It was a wonder that he did not break his neck, but he escaped with a bruise. This experience was evidently quite out of his mind as he put himself in dangerous positions on Gray's Peak, and sought out the most perilous and difficult paths, though more than once Tom cautioned him.

In a few hours the little party had passed above the limits of the cotton-wood and attained a region where the only trees were pines, gleaming silver-firs, and the graceful Douglas spruces. These diminished in size as the soil in which they grew became shallower and the altitude greater. The struggle for existence was visible in their dwarfish growth, and the fierceness of the winter's wind had left its mark in the grotesquely misshapen branches. Even they could no longer endure the exposure. Reduced in height to the size of a man, and looking like weather-beaten roots, the last of them reached upward among the boulders, holding on to life as long as possible, and then the mountain was deprived of their scant covering.

Greene and the pack-animals were left at the old Stevens silver-mine, twelve thousand feet above the level of the sea, and the three boys continued the ascent with Dave. Above the timber-line they looked out upon a vast and magnificent reach of country. They could see Mount McClellan, and more than a hundred other peaks scarcely inferior in height to it, half buried in the clouds or glistening with luminous distinctness against the blue sky. The rocks were piled chaotically around them, and occasionally they came upon a patch of treacherous morass. The air became so fine that they ex-

perienced a tingling sensation in the lungs, like the punctures of needle-points, and they found it necessary to rest more frequently than lower down the mountain. But as they neared the apex, and the view widened, bringing peak, lake, and plain within its clasp, a gladness almost boisterous filled them, and their weariness passed away.

There was more snow than they expected, but the trail was clear and safe.

Near the summit they reached a precipice, surrounded with deep drifts of new snow, and edged with rock and gravel cast down from the overhanging cliffs. Just beyond this the trail bent off and more than doubled the length it would have had had it continued in a straight line. Between the beginning and the end of the curve there was a mass of firmly packed snow, lying on a very steep slope, and over this the trail would have passed had it not curved away from it to avoid the precipitousness.

Bob was the first to reach the beginning of the curve, and he turned round to look at his companions who were far below. Then, after pitying them and silently congratulating himself that he was a better mountaineer than any of them, he started on again. But, suddenly, the circuitousness of the trail, and the greater directness a line would have if carried across the snow, arrested his attention. He paused a moment, and then descended over a mass of loose rocks to the edge of the snow, and dug the heel of his boot into it: it was almost as hard as the rock, and not at all slippery. Whistling cheerfully all the while, he looked across the white field to the point where, crossing it, he could rejoin the trail, and



Clear Creek, below Georgetown.

he calculated that in this way he could save, perhaps, a quarter of an hour, and thus gain still more on his friends. But the saving of time was not the motive that led him to attempt to cross the snow. It was a mischievous, unthinking impulse. Had he paused a moment longer, he would not have entered on the foolish adventure.

Looking around him, he picked up two long, pointed stones, and, grasping one of these in each hand, he started over the snow, using them to secure a hold on the smooth, white, slanting mass. His movement was practically on "all-fours," and was more laborious than he had anticipated. As he advanced, he cut out steps for his feet with the stones in his hands. He had not gone far when he repented, and he would have retraced his way, had he not discovered Tom in sight of him; he did not like to be seen retreating, or to be laughed at for what would seem like a want of pluck. So, waving his hand to Tom—a movement in which he nearly lost his balance—he went on digging steps for himself with the sharp stones in his hands.

When Tom first saw him crawling across the snow-bank, he smiled at the unnecessary labor which Bob was giving himself; but a moment later he saw the situation in its true light—he saw that his friend was in peril. The lower edge of the snow-field overlapped the precipice before mentioned, and a misstep would send the foolish boy flying over it into the dark space below. Tom leaned over a rock and peered into the depth: the bottom was fully six hundred feet below, and strewn with bowlders. Then he held his breath and waited.

It was evident that Bob was becoming tired and nervous. He moved very slowly, and once or twice staggered as his toes slipped in the crevices which he had hewed out for himself. As often as he made an advance of three or four feet, he paused to rest himself, and anxiously looked up to see how much farther he had yet to go in his difficult path.

Tom was now joined by Peter and Dave, who, as soon as they saw Bob's position, uttered an ejaculation of alarm. Tom made a signal for them to be quiet, lest they might communicate their fears to Bob, or divert him from the work before him, which required all his attention. The three stood silently and apprehensively watching him as he toiled up the gleaming slope of white. He had yet fully a score of yards to go, and the field was thinner at the upper edge than in the middle or at the lower edge. A few flakes broke from the mass and slid rapidly down and over the precipice.

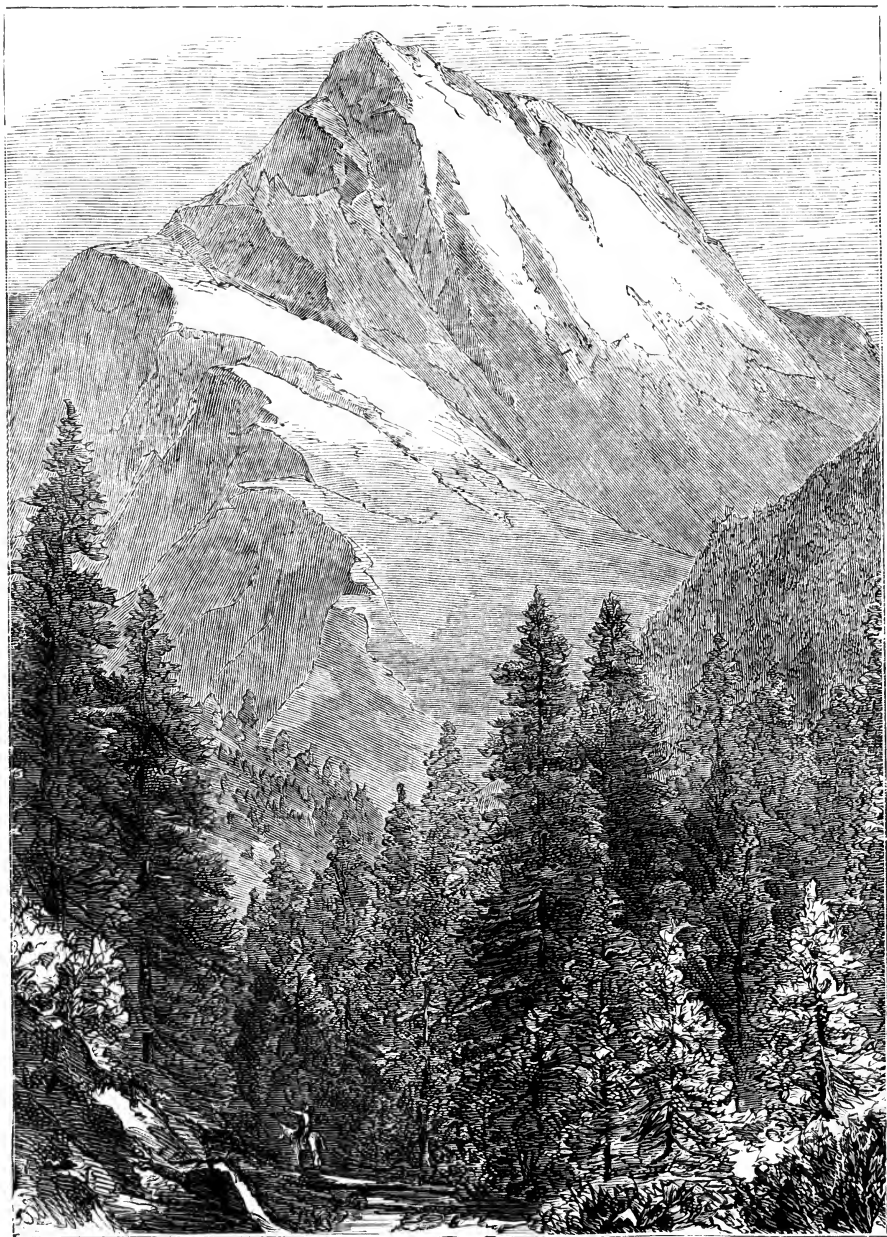
Bob himself knew now as well as his friends that he was in peril. His fingers became numb, and one of the stones with which he had been cutting his way slipped out of his hand, and he heard it bound and rebound until it passed over the brink. He heard also something that could not reach the ears of his friends—an ominous, creaking sound—and he felt a slight movement of the snow-field. It was scarcely more than a tremor, the vibration caused by his steps, but it was enough to terrify him.

His friends, standing on the same knoll from which he had contentedly watched them following him up the trail a few minutes ago, could see his agitation, and by-and-by the

creaking and crackling of the snow was so loud that they could hear it. They saw him rest a longer time than usual, and then, as he resumed his efforts, a sharp cry came to them—a cry that seemed to run like the point of a sword through their hearts. It was Bob's voice raised to a shrill pitch of alarm. They saw the whole field of snow move downward toward the precipice, at first slowly, and then with the same swiftness as the fragments that had preceded it. They saw Bob, who had thrown himself forward upon it, carried with it. A cold wind seemed to blow upon them in this imminence of death, and they clutched at one another like drowning men, as if they, too, were on the snow and being hurried over the precipice.

Twenty seconds elapsed between the moment when the snow detached itself from its bed and the moment that the greater part of it disappeared over the ledge. The seconds were like hours or days, and it seemed to those who looked on that Bob was sliding down mile after mile. The vision of the white, gliding mass, with the helpless figure prostrate upon it, was fixed in their eyes. It even seemed to them that they had seen their friend disappear into the gulf, whose depth they knew to be so awful, and that nothing remained but the wet, brown rock upon which the snow had been lying. But this was a trick wrought by their overstrung nerves on their sight.

Reaching the ledge, the snow had struck a boulder and broken into halves, one of which had instantly been precipitated into the depths, while the other had remained clinging to the slope. On the latter lay Bob, faintly beckoning them.



Gray's Peak.

He was not yet out of danger, however. The area of snow in the center of which he lay was too great to allow them to reach him from the rocks, and its hold was evidently so insecure that any movement, either of his or of any one stepping on it, would start it over the ledge upon which it pressed, and seal his fate.

The riding-animals had been left and haltered where the timber ceased in a picket-line of groveling cedars, and Tom bounded down the trail at a break-neck pace for them. Among other lessons, his experience in the Alps had taught him the use of a rope in climbing, and he had a well-tested hemp cord, several yards long, strapped on to the crupper of his saddle. He reproached himself for having left it behind, but he was not long in getting it.

Meanwhile, Dave and Peter had descended to the edge of the snow, and were unsuccessfully endeavoring to reach Bob, who lay motionless, as if paralyzed by fear, as well he might be. They had taken off their coats and knotted the sleeves together, hoping to give him something to grasp in this way, the only one by which he might be saved. His life depended on his stillness. He might either slip himself, or the snow might slip with him, which several times it gave signs of doing. Now and then a crack was heard, and a piece broke from the mass. Once the mass itself again moved a few feet nearer the precipice, but again it was stayed. Bob lay trembling, and held his breath.

"Cheer up, old fellow!" cried Tom, as he hurried down to the others. "In another moment you'll be all right."

If the pack of ice and snow would remain stationary for

that moment, it seemed to Dave and Peter also that their comrade could be extricated from his peril.

Advancing to the edge, Tom carefully lowered his rope. He was afraid to throw it, as, light as it was, it might start the mass. He fastened a stone to the end of it, and let the stone slide down the smooth surface with it. But it did not reach Bob; it glided to one side of him, beyond the length of his arm. The poor boy watched it pass him, with a faint sigh of despair.

"I can't hold on here much longer," he said, quietly.

Tom hauled the rope in, and again lowered it—again it curved away and missed Bob. A third and fourth attempt led to the same result, but with the fifth attempt it reached him, and he clutched it, while Peter, Dave, and Tom held on to the other end. Tom had made a noose in the end which he had sent to Bob.

"Try to slip it under your arms," he cried.

The effort made by Bob in obeying these instructions detached the mass, and it shot over the precipice, falling, a moment later, at the foot, hundreds of feet below. Where it had lain, the boys saw the bare rocks lying wet and brown, and there, also, lay Bob, with the noose drawn taut about his breast. At the final moment they had felt a severe strain as the snow broke away, but their arms and the rope had withstood it.

Bob was reasonably frightened, and could not speak for a few minutes. But he was not much injured, though his clothes were in rags and tatters, especially his lower garments.

"Those buckskin breeches which you laughed at would

be useful now," he said, with a comical air of reproach, by-and-by.

His friends wanted him to return to camp, and offered to accompany him, but he pluckily insisted on continuing the ascent with them, hatless and dilapidated as he was.

Above the scene of the accident, a long, steep slope of snow-clad rocks rose before them, and a narrow trail, winding precariously upon its face, led them nearer to the summit. Up, up they toiled, crushing their way through the snow, and swarming over the boulders. Then they stood on the top, and saw below them the Middle Park of Colorado, with all its subordinate ranges and numerous streams and rivers, walled in by a vast mountain-chain, whose average height exceeds thirteen thousand feet, and whose passes are from eight to eleven thousand feet above the sea-level.

"It's worth while," said Bob, referring to the labor which the ascent cost; "but," he added, looking at his ragged garments with a grimace, "it's cold."

CHAPTER V.

ADVENTURES IN SOUTH PARK.

THE days that followed continued fair—even more than fair, for the sun shone as our young adventurers had never seen it shine before, and the air seemed like an intoxicating draught. Bob could not help whooping as he and his companions pushed on over the foot-hills and into the sweet-smelling forests, though his limbs pained him not a little. He, and his friends, too, stood still and drew in mouthfuls of the tonic exhalations of the pines. Their eyes sparkled with new life, and their superabundant vitality found vent in all sorts of wild play.

After the ascent of Gray's Peak, they made for the South Park, and in its neighborhood they spent three weeks, climbing the peaks, fishing, and shooting. They were fortunate in all their sport, and supplied their mess with an abundance of brook-trout, grouse, and venison. All day long they were afoot or in the saddle, and in the evening they returned to camp, and after supper sat under a sky in which the stars were strewn like the diamond-points on the ripples of a sunlit sea.

Greene had an old violin, on which he rasped negro mel-

odies, and for a time his music was appreciated, but its quality was not of a kind to bear indefinite repetition. Tom, therefore, posted him some distance from the camp, and he sat alone in the darkness, far away from the fire, and fiddled contentedly until bed-time. If before then the boys grew wearied of his performance, they sent him to "look for an echo"; and, quite willingly, he tramped off among the hills, trying to bring answers from them with his cracked old instrument. He evidently enjoyed looking for echoes, and, in the day-time, as well as at night, went climbing over the rocks in search of them, with his violin in his hands, scraping it occasionally and listening for a reply in an attitude of comical attention. His devotion to this occupation resulted more than once in burned supper, and the growls of the boys were more distinct than any responses awakened by his violin in the mountains.

One morning, after cleaning his pots and pans, Greene went as usual on an echo-hunting expedition with his fiddle, while the boys and Dave remained behind—the latter mending his *apparajoes*, or pack-saddles, and the former furbishing their carbines and revolvers. They were sitting down, singing over their work, when they heard some-

*Echoes.*

thing cracking in the surrounding underbrush, which anon was pushed open by Greene, who came into camp at a run, and had no breath left for speech.

"Guess he's found some'n' more'n an echo this time," said Dave.

"What's the matter?" demanded Tom.

"A bar! Jest as sho as you live, a 'normous bar!" said Greene, as soon as he recovered his respiration.

"No!" exclaimed Bob and Peter, temporarily overcome by this novelty.

"Sho," repeated Greene.

"Didn't stop to take a drawring of him, did ye?" inquired Dave, sarcastically. "Why didn't ye capter him? Ye might hev taught him how ter dance, and set up an opposition show to them I-talians in Denver. Cinnamon or grizzly?"

"Grizzly, sho," insisted Greene. "I was jest sittin' on a bowlder up dar in de canyun, when I yeard somefin' in de chaparral down by de creek. Sho 'nuff, dar was somefin'; and when I see de 'normous somefin' comin' up, James River! I 'lowed dat it was about time to get ready for dinner, an' I got right up an' dusted."

"Come on, boys," said Tom. "Let's see if we can find him."

The whole party, led by Greene, now hurried off in search of the grizzly, and, when they reached the side-cañon, they found bear-tracks of a large size in the yellow sand on one side of the creek. The tracks led from the water to an embankment of loose pebbles, washed up by the floods when the quiet creek had been a roaring river, and here the boys

could no longer follow them, though Dave, with a sharper eye, could still descry them, faint as the impression was, over the stones.

"A man who's been in this hyar country, mountain and plain, twenty years, oughter be able to read fine type," he said, figuratively.

The type was invisible to the boys, but Dave could distinguish it, and he made it out, line by line, until they reached the farther side of the embankment, where in the softer earth they could again see the great, round, padded foot-prints of a bear leading off into the dusk of the pines, on the cañon-slope.

"He's been hyar within twenty minutes," Dave said, brushing one of the molds with his hand.

Peter looked at the straight shafts of the pines and silently calculated the strength of their branches. He was not a good shot, and as he was prudent he took into account what could best be done in event of a retreat.

"It wouldn't be difficult to climb up one of those pines?" he remarked interrogatively to Bob.

"No," said Bob, who had been giving the same subject some thought, and had recalled the scene between Man Friday and the bear on the tree in "Robinson Crusoe."

"Why, bless you," whispered Dave, "a bar could beat yer out of sight in climbing a pine—could give ye half an hour's start and be at the top afore ye if he'd a mind ter. What ye want'er do is ter get holt of some small tree—a cotton-wood, may be—that will hold your weight and not his. And there ain't no cotton-wood about hyar," he added, slyly.

The foot-prints were still plainly visible on the ground, which was strewn with the spikelets and cones of the trees, and they led up to where the slope of the cañon ended in a craggy and nearly vertical wall. At this point they disappeared at the entrance of a dark cave, formed by several large bowlders which had fallen from above.

"Now, Greene, go in thar and get yer bar," said Dave, pointing to the hole.

"Go in dar yo'self," answered Greene; "but he's my bar."

"Wall, we'll see about that when we've seen how he cuts up. He's yours if he ain't tender."

I think that Peter and Bob devoutly hoped at this moment that the bear would not appear; and so far it had shown no signs of doing so. Dave posted himself in front of the cave, and Tom stretched himself down beside him. Peter and Bob, under Dave's instructions, took positions at each side of the entrance, and lay there with rifles cocked. Greene was ordered to place himself on a rock over the mouth of the cave, and objected to the position because, he said, it gave him no opportunity.

"What am de use of findin' a bar?" he complained.

They waited a long time, and yet no bear revealed himself. They could hear the rustle of the wind among the trees, the fall of the cones, the tapping of the woodpeckers, and their own breathing; but no low growl resented their presence. Once Peter convinced himself that he saw a black, shaggy shape coming out of the hole; once Bob whispered that two fiery little eyes were burning in there; but nothing emerged. Even the stones which Dave occasionally threw

directly into the cave did not bring the bear out to see who was invading his privacy. Yet the tracks certainly led into that dark orifice; and Greene declared that he could "smell bar." Was the bear a modern bear, with the old courage of his species gone out of him; was he a believer in the creed that discretion is the better part of valor—one of the Manchester school of politicians? Was he sitting on his haunches, and calculating how poor his chances would be under the fire of four rifles and as many revolvers? Dave pitched another stone in, and it could be heard rolling down in the darkness of the cave, but it also was ineffective. The waiting and suspense were becoming tiresome. Dave was puzzled. At last he said, "Let's have another look at the tracks."

He traced them down the slope again, and the boys followed him, leaving Greene behind, keeping watch over the entrance from his elevated position on the rock.

Greene had now got a long branch of pine, and was sweeping it to and fro like a pendulum, while he hummed a tune, to which he fitted some words of his own: "Sho, bar! keep away dar!" He repeated this over and over again, occasionally varying it with a whistle or a scrap of conversation with himself. The others could hear him as they proceeded slowly down through the forest. Shortly they discovered an explanation, or what might be an explanation, of the non-appearance of the bear. A newer series of tracks diverged from the main line which led up to the cave, and passed round in the direction of the rock on which Greene was lying. Instead of taking his accustomed path home, the bear had evi-

dently turned aside for some reason. Simultaneously with this discovery, Greene's voice was heard, no longer humming, "Sho, bar! go away dar!" but in a bellow of extreme alarm. He had been surprised from the rear, and his previous dissatisfaction with his position was proved to have been unjustified.

The bear was standing over him, gazing at him, sniffing at him, and almost smiling at him, while he lay on his back, howling and waving his arms in complete terror. The brute had not yet shown any unfriendly intentions, and though the noise made by Greene was enough to irritate and alarm a bear cast in bronze, this living specimen seemed curious rather than savage. The moment he advanced a step, however, Greene, yelling to Dave for help, wriggled himself off the rock and dropped down to the level of the entrance to the cave. The bear went to the edge of the rock, and, as it seemed to the boys, peered down solicitously after him. Standing thus exposed he made a splendid target, and, of the four shots instantly fired at him, Bob's and Peter's flew to the right and left of him, Tom's went over his head, and Dave's struck him between the eyes and was fatal to him. He rolled down dead, and almost fell upon Greene, who lay so quietly where he had dropped that the boys feared he was seriously hurt. As soon as he saw the bear coming down, Greene showed them that he had broken no bones by leaping up with a shriek and bounding down the slope.

"Blest if he ain't afeared of his own bar!" said Dave. "Come back hyar!" he called. "What—what's that ye told me about killing three grizzlies up onter the Downieville

Butte? I guess they must have been corraled, or chained up to a circus-wagon."

When he was quite sure that life was extinct, Greene came up and claimed his bear, and the camp made a more intimate acquaintance with bear's-meat in roasts, broils, and stews.

As they were sitting down to supper that night, they saw two men coming along the trail, the first they had seen since leaving the Kelso cabin on Gray's Peak. The strangers camped close by them, and in the evening joined them. They were Mr. A. M. Welles, a geologist and surveyor, and one of his assistants. Though a young man, Mr. Welles had had a peculiarly varied experience in the West, and among the adventures which he related to the party around the camp-fire was the following:

Early in the spring of 1877 Isaac F. Evans (after whom are named the Evans gulches at Leadville) and myself entered the Ute Indian reservation, that section of country lying between the main range of the Rocky Mountains and the eastern border of Utah.

We were in search of some placer-diggings which Evans claimed that he had discovered seven years before, while crossing from Utah to Colorado. Our outfit consisted of two saddle and three pack animals, and we had reached a point bordering on the head-waters of the Grand River, when certain hostile demonstrations on the part of the Utes caused us to retreat to the more inaccessible and unfrequented portions of the mountains.

One afternoon we were passing down a gulch, or ravine, filled with fallen timber, tall grass, and huge willows. Evans was riding ahead, and I was in the rear, the pack-animals being between us.

Presently he announced that either a doe or a mountain-lion had crossed the trail a short distance in front, and concealed itself in the thicket. Owing to the uneasy condition of the horses, we concluded it was a lion, and that something must be done, as there was but the one path.

It was decided that I should endeavor to rout the beast; and, taking Evans's pistol, a large navy Colt's, together with my own, a forty-four caliber (Russian model), and my rifle, I proceeded to a point on the side of the ravine above, and directly opposite the place where the lion had entered.

Between him and myself, and about fifty feet from where I supposed the animal lay concealed, rose a huge rock to a level with the top of the willows. I determined to gain the summit of this rock, from which I could get a better view of the situation, and more ably defend myself.

I had scarcely reached its summit, when a very large mountain-lion sprang from his hiding-place, about twenty feet distant, and, glowering at me, walked cautiously into the thicket again.

As quickly as possible I raised my rifle and fired, without seeing him, but determining his position from the movement of the bushes. As I fired, he sprang from the thicket into a large opening partly filled with the fallen timber which surrounded one side of the rock upon which I stood. Instantly I dropped my rifle, and tried to grasp the six-shooter which

hung at my left side, but I was so hurried that it slipped from my grasp and fell from the rock. In attempting to recover it before it reached the ground, I lost my balance and fell headlong into the opening. The lion leaped back and stood upon a fallen tree, deliberately eying me.

There was no time to retreat or to hunt the lost weapon, and, seizing the remaining pistol, I took deliberate aim and fired. Uttering a savage yell, the lion jumped from his position toward me, and, as he did so, I discovered that he was wounded in the hind-quarters, and thus unable to make the immense bounds so common to these beasts. But his progress was rapid, and I fired at him as quickly as possible.

As I discharged the fifth shot, he sprang with one forepaw upon a log which separated us, and with the other seized me by the shoulder; extending his jaws, he then attempted to grasp my throat, and I fired my last shot into his open mouth. The bullet passed right through the back of his head. I then clubbed him over the head with the butt of my pistol, and he sank slowly to the ground, tearing the sleeve of my coat to shreds with his claws as he fell.

In his dying agonies he attempted to reach me by crawling under the tree, which was raised a little above the ground; but, when he had got about half-way under, I jumped over to the other side. He was now motionless.

Thinking that he was surely dead, I stooped down and took him by the leg to pull him out. No sooner had my hand touched him than he again seized me by the arm, taking garments and flesh in his grasp. After releasing myself

the second time, I seized a large pine-knot and pounded him until life was extinct.

He measured over nine feet in length, and upon examination I found that five of the six shots fired had taken effect. One of them passing through his loins, had given me the advantage that had saved my life.

This reminded Dave of an encounter which he had had with a panther, and it recalled to Greene a "termenjous" lion which he had seen in the Sierra Nevada.

"Guess dat der lium measured twelve, maybe fourteen feet, frum de tip of his nose to de tip of his tail, sho!"

"May be twenty feet," said Dave, who put him under a cross-examination, which led him to admit that what he had seen in the Sierras was a domestic cat on a roof in Downieville, and that the only mountain-lion he had ever seen was a small one at a dime museum in St. Louis.

"Now, look here, Greene," said Tom, decisively, "if you spin any more yarns of that sort, I'll stop your pay for a month, and send you to the top of Mount Lincoln to look for echoes."

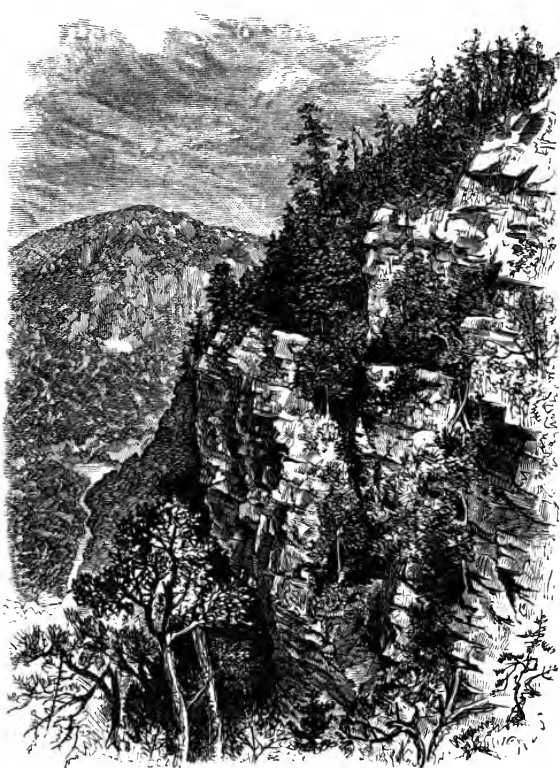
Greene had made up his mind since the morning that echo-hunting was dangerous.

Before the two parties separated, Mr. Welles described another adventure, which was substantially as follows:

In the campaign of Evans and myself, already referred to, and while we were shunning the Utes by a prolonged sojourn in the inaccessible parts of the mountains, we were inces-

santly annoyed by the near approach of hostile bands, and were broken down by the sleeplessness caused from the constant watchfulness enforced upon us. The Indians were scattered through the lower country to such an extent that any attempt at releasing ourselves by retracing our steps would inevitably have brought us into collision with them.

As it was early in the season, and the region was a fine one for hunting and fishing, we had little hope that we would be released for some time—an exceedingly unpleasant prospect, for we had only about thirty days' provision left, and there was an unknown mountain-range and many miles of rough country between us and the nearest point where our stock could be replenished.



Cliff in South Park.

With these facts before us, we resolved that we would endeavor to force our way over the mountains, and, as speed-

ily as possible, we made the start. We were obliged to forsake all trails that might prove Indian trails, and this subjected us to the most horrible routes. We often struggled to reach a summit, and when we attained it found ourselves cut off by frightful precipices or impassable barriers of rocks. Then we had to retrace our steps and try some new point.

One day, in searching for a new outlet, we arrived about dark upon the banks of a large stream which I believed to be a fork of the Eagle River. The sky was very cloudy, and a violent storm seemed near at hand. The river was already a dangerous ford, owing to its rapid fall and the immense masses of melting snows which lay in the mountains above. We were obliged to cross, however, and fearing the great rise which would be produced by the coming storm, we decided to make it that night. After carefully readjusting the packs and tightening the saddles, we made the attempt.

Mounting my saddle-horse "Nig," a quick, strong, intelligent California mustang, I jumped him off the bank into the river. Evans then passed me a lariat to which was attached one of the pack-animals, an American horse. With this I proceeded in safety to the opposite shore.

Returning, I next undertook to cross with one of the remaining pack-animals, a wild, vicious, Indian pony. After a hard struggle we succeeded in getting him off the bank into the river. We were obliged to cross diagonally, as a horse could not stand a moment at right angles to the current.

After reaching the water we gave the pony no time to consider, but kept him going. He proceeded very well until

we were about in the middle of the stream, when from fright or viciousness he attempted to retrace his steps, and, the moment he placed himself with his side to the current, he was swept from his feet.

The pack overbalanced him, and he rolled over upon his back and was at once helpless. The waters swept and tossed him like a piece of bark, throwing him violently against huge bowlders. He was dead before he had descended a hundred feet.

In endeavoring to hold on to him that he might gain another footing, I had turned my saddle-horse into an equally perilous position. Dropping the rope which was attached to the pack-animal, I withdrew my feet from the stirrups of my own, and, clinging to the saddle with one hand, endeavored to wheel him into safety. For a moment he stood with his breast to the flood, clinging for life to the scanty footing afforded him, and trembling like an aspen-leaf. But, suddenly, rearing high in air, he made one desperate plunge. His feet caught the bottom, and, before the water could displace him, he made another and another spring, landing safely on the opposite shore.

I at once went down the bank, and a short distance below found the dead horse washed upon a sand-bar. After securing what remained of the pack, I recrossed the river to help Evans in bringing over the third animal, and when we reached the shore we made camp.

By this time it was raining very hard. Suddenly we heard a splashing in the water, and, looking out, we discovered that the mate to the horse which had been drowned

was recrossing the stream in search of his companion. I jumped upon one of the remaining horses and started after the runaway. Some time was consumed in securing him, and he had gained the opposite shore and run some distance before I succeeded.

When I again reached the stream it was in such a condition that fording it was an impossibility, and it was now very dark. So I turned about and, tying the horses to a tree, threw myself down upon the ground in a small clump of bushes close by them. The storm raged furiously until about midnight, when it subsided to a disagreeable, drizzling rain.

Early in the morning I was astir to see if it was possible for me to reach our camp; but it was out of the question, and I was obliged to remain where I was until nearly night.

Evans meanwhile fed me by attaching pieces of meat to stones which he threw across the river.

That night I succeeded in crossing, and the following morning we resumed our travels. We were now in an almost perilous condition. From our wanderings we had lost all ideas of our locality. Most of our provisions had been in the wrecked pack, and were either lost or destroyed. We were short of food, and nearly all our extra ammunition had also been lost. Our horses were getting lame from the loss of their shoes and the constant travel over rocky ground. In this condition we went on for several days, and at the end of that time we were worse off than ever. Our provisions were now entirely exhausted, and we had but a few pistol-

cartridges left. Next day we killed two small grouse, which we devoured ; then our only resource was some killikanick-berries, wild rhubarb, and roots which we gathered on our road.

As time passed, our sufferings increased under this diet. Constant pains worried us during the day, and kept us from sleep at night. The sixth day our sufferings became almost unendurable, and it was decided that in the evening we would kill one of the horses for food.

During the morning we came to the summit of a high divide, and to the south and right of us we discovered a large, open country. We descended as rapidly as possible, and, at about 4 P. M., we reached the border of what proved to be a large park. Winding along the bank of a stream which passed through it, we espied a horse and mule grazing near a point of timber a short distance from us. The mule led us to believe the persons encamped here were white, and, directly behind the point of timber, we discovered a column of smoke ascending. We made our way directly to it, and, to our joy, found a camp of three white hunters and prospectors.

They, too, were out of nearly all provision except flour ; but the flour, mixed with baking-powder and cold water, and baked in a frying-pan, tasted to us like the most delicious food we had ever eaten.

We remained with our newly found friends during the night, and learned that we were on the head-waters of Taylor River, and in what was known as Taylor's Park. The next morning we traded our lame and jaded horses for fresh ones. We then started for Matta, at the mouth of Califor-

nia Gulch, in which Leadville is now situated—the nearest point where supplies could be obtained. This was some fifty miles distant, and on the following day we reached it.

“Comin’ back to the subject of lions,” said Dave, who had been brooding on the matter, “they’re onpleasant customers to meet—ain’t they, Greene?”

“But however near a man comes to being killed by them, he usually escapes the fatal catastrophe,” remarked Peter, cynically. “I’ve read lots of stories of mountain-lions, and, though the heroes of them have usually been at the point of death, something miraculous has always turned up to save them. If the hero were killed, it wouldn’t be a good story.”

“That ain’t so, Mr. Small,” protested Dave. “I’ve known men to be killed by ’em. There was Jim Kimball, now.”

“Who was he?”

“Well, Jim Kimball was a pardner of mine.”

“How was he killed?”

“I’ll tell ye. Jim asked me to go into the mountains with him to hunt for bar, but I didn’t go. Thar’s no amusement in seeking bar at my time o’ life. I ain’t like Greene thar. Well, sir, Jim went himself, and took Fred Perry along with him. This was at Georgetown, six years ago.

“They left early in the morning, and they didn’t return at night, as I expected they would. ‘The old bar’s givin’ ’em a long chase,’ I said to myself. I didn’t feel the least oneasiness about them. But there was no signs on ’em next day either; and, as it began to snow and blow, I didn’t feel

so well satisfied about 'em. But Jim, he'd been out in many a blizzard, and thar warn't no man 'round thar as knew the mountains better'n him.

"They started out oner Tuesday. Friday come, but no Jim nor Fred, and the weather was just about as cold as it ever gits. The foot-hills were deep in snow. It seemed onkind ter think as anything had happened ter Jim—seemed ter reflect on him somehow, as ef he didn't know what he was about.

"Wall, sir, I got twenty of the boys ter go up among the foot-hills 'n look fer them with me. The snow was more'n two foot deep on the level. Where it had drifted it was all the ways from six foot to ten or more.

"We separated into pairs an' struck out in different directions up one of the foot-hills ter which we'd traced them. Every mile or so we fired a gun. But we reached the roudy-voose, which had been appointed when we separated, without seein' shape or sign of the missing men.

"There was no place where they could hev taken shelter, except the cabin of a Chinaman, between the town and the mountains, and John told us that he'd seen nothen' of them.

"We separated again, and I had with me Dick Vail, the same man that was killed by the Apaches near Cimarron last year. May be you've heerd of him. It was hard work, breaking our way through the snow. Twicet I fell into the drifts and was nigh buried in 'em. Wall, we got up ter the summit o' the first ridge, and went down it aslant, Dick takin' one line and me another. There were pines over us most of the way, and under them the snow was least deep. I couldn't

believe that Jim wasn't all right, but I didn't feel cheerful about him, I can tell ye.

"I was going along down the slope, looking keerfully about, when I saw an uneven mound, a log I took it to be, covered smoothbly with the snow. I jest stepped over it, without thinkin' of it, and went on down the mountain until I come to a narrow gulch. Here I fired my gun again, and stopped to listen if there was any answer. No sound at all, savin' the *flop!* of a lump of snow as it fell off a tree. While I was standin' listenin', that log higher up come back ter my mind, and I walked back ter it an' gave it a kick ter try it. The snow fell off it, and it seemed softer than wood. I scraped more of the snow away with my hands. There was somethin' red underneath. It wasn't a log; *it was Jim!*

"I hollered ter Dick, an' he came running to me. 'Found him?' sez he. 'Yes,' sez I, 'look.' Poor old Jim lay there, dead. His clothin' was in shreds around him. Most of the flesh had been torn off of him, and the ground and the snow were sloppy with his blood.

"There was somethin' queer about it. The fight hadn't taken place where his body lay, that was certain. The ground was smooth around him, and he had neither his gun, nor his revolver, nor his knife. The brute that had killed him had left no trail.

"We trod the snow down all around, and signaled fer the other fellers ter join us. About a quarter of a mile off we found the ashes of a fire, and, just by this spot, Jim's gun. The gun was stacked up again' a tree; both bar'ls

were empty. Near it, deep inter the snow, we raked out his knife; a bit farther off, we found a lion, sunk in a drift—dead. There was one shot behind the brute's shoulder and another in his haunches. His head had been slashed with a knife. Jim hadn't let him off easily. Jim, I tell ye—poor Jim!—was one of the smartest men I ever knew."

"How did you account for the presence of the body so far from the scene of the encounter?" Tom inquired.

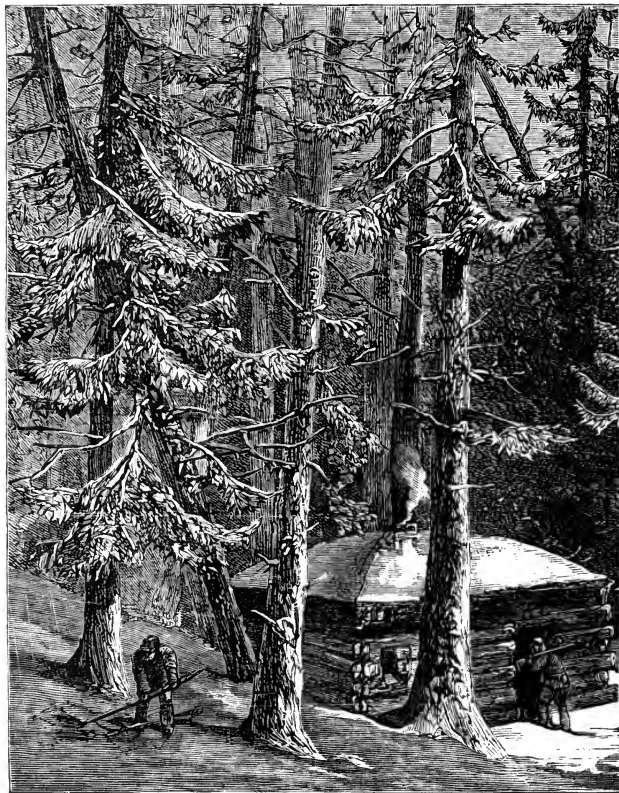
"Why, fust of all he must hev fired at the lion an' brought him down, and then, thinkin' the brute ter be dead, as Mr. Welles did, he must hev rested his gun again' the tree an' gone ter take holt on him. While he was lookin' at him, the lion must hev clutched him and torn him, an' then it must hev been that Jim used his knife. The poor boy crawled out of the claws of the beast ter die where we found him."

"But where was his companion, Fred Perry?"

"When we had sent Jim inter the town, the rest of us went on searching for Fred. We scoured the mountains in all directions for him. We saw the trail of bar, but no sign of him. It was clear he hadn't been with Jim at the time of the fight with the lion. Where could he be? It looked as ef we wan't goin' ter find him. I was afeard he had been lost in the snow, an', p'r'aps, was lying stark, as Jim had been, in some drift. But, by-an'-by, we reached an old shanty, under the wall of a gulch. In it was a smoldering fire, and the tracks of a man led out from it in the direction of the town. We followed the foot-prints

home, an' thar was Fred. He had left Jim jest before the snow had begun, and hadn't been able to find him agin.

"There are lots of untold stories in them thar mount-



"We reached an old shanty."

ains, Mr. Small," said Dave in conclusion. "The books ye read may be full of mirac'lous escapes, but there are many who go forth up thar without heving any such luck—many who perish and are never missed."

The conclusion of Dave's story was not inspiring. The listeners were silent; the fire no longer flashed and sparkled, and they did not care to revive it. They wished one another good-night, and soon protected their drowsy eyes from the flicker with their blankets.

There is no silence like the silence of Nature out-of-doors, no silence so deep and perfect. The gasping of the pines, as the low mountain-wind swept through them, was sometimes like an articulate voice; the fall of each needle from the branches on to the springy earth underneath, and the crumbling of the ashes on the logs in the fire, could be heard; and even the scintillation of the stars, which never elsewhere look as large and brilliant, and yet so distant as in this mountain-region, seemed to be audible.

Imagine the effect of a shrill, piercing, nerve-shaking chorus, totally unexpected, rising with the suddenness of an alarm in this quietude, and striking the ears of the men as they were dropping asleep. Such a chorus broke the silence of the little camp in the South Park; a chorus which it seemed was not composed of the voices of one species, but which comprised in its discordant volume every unmusical creature. At one moment there was a shriek ferociously human, like the whoop of an Indian; then a piteous, dog-like whine; then the derisive howl of a hyena; and then a scream like a tiger's. The loudness of the sound was not less remarkable than its harsh quality; it was as if the camp were surrounded by devils impatient to seize the occupants.

No one could hear that chorus for the first time without quailing. But, since they had entered the field, the boys had

become used to such demoniac awakenings, and they merely turned over in their blankets, muttering complaints that their rest was thus disturbed.

It was the nocturnal concert of the prowling coyotes; and perhaps all this sound, pitched in so many dissimilar tones, came from the throat, not of a pack, but from a solitary one of these barking wolves, which follow the hunters' camp for its offal, and hide by day, but make night hideous with their unwelcome serenades.



Coyotes.

CHAPTER VI.

HUNTING THE BIG-HORN.

ON the next morning Mr. Welles left, with his little outfit, for Denver, and our adventurers moved farther southward through the Park.

South Park, which they were traversing, is one of the great valleys of the Colorado mountains. It is about forty-five miles in length, and somewhat irregular in shape. The surface is uneven. At the northwest end it is from nine to ten thousand feet above the sea-level; in the southeast it is only seven thousand feet. There are many mountain-ridges running through it, and at the south end there are frequent isolated buttes, most of which are volcanic. The surrounding peaks are from one to five thousand feet above it.

While they were encamped under one of the buttes, Tom and Bob took their guns, one morning, and went out to look for mountain-sheep. They had always been lucky in their hunting so far, and they were not disappointed on this occasion. They had climbed one of the smaller peaks, and were resting near the summit, when they saw, on a ledge about sixty feet below them, the massive horns of the leader of a flock rise into view from a chaotic mass of rocks. He

came with a series of sharp bounds up a path on which no human being could stand; paused a moment with nose pointed, surveying the prospect, and then intimated to his followers that they might safely approach. There were six of them—splendid fellows, standing out on the ledge with nothing between them and Tom and Bob, who were so interested in the sight that, trembling with excitement, they bent forward watching them, without making any preparations to fire.

The boys were not cold-blooded hunters, and the grace and agility of the sheep temporarily took away their desire for sport. They wished to observe, moreover, for they had often heard of, but never before seen, these hardy and adventurous animals.

The mountain-sheep are more than twice as large as the domestic; and, instead of a coat of wool, their outer covering is hair like that of the deer, under which is a soft lining of fine wool. Their color varies, with the season, from a brownish-gray to a bluish-gray; the belly and a patch on the buttocks are white, and the tail is black with a yellowish border. Their horns are sometimes six inches or more in their greatest diameter and three feet in length, and hence the name by which the sheep are most commonly known—big-horn. Their weight averages about three hundred and fifty pounds. They are graceful, sleek, cleanly, and courageous.

Later in the season Tom made the acquaintance of Professor John Muir, the Californian explorer and poet-naturalist, who has made a study of the sheep, and from him he learned many interesting things concerning them.

Their resting-place and feeding-grounds in summer, the professor told him, are among the most beautiful of the wild gardens, bright with daisies and gentians, and mats of purple bryanthus, lying hidden away on rocky headlands and cañon-sides. Here, and among the castle-like crags of the high summits, they feed throughout the summer in separate bands of from three to twenty.

When winter storms set in, loading their highland pastures with snow, like the birds they gather and go to warmer climates, usually descending the eastern flank of the range to the rough, volcanic table-lands and treeless ranges of the Great Basin adjacent to the Sierra. They never make haste, however, and seem to have no dread of storms, many of the strongest only going down leisurely to bare, wind-swept ridges, to feed on bushes and dry bunch-grass, and then returning up into the snow.

Once Professor Muir was snow-bound on Mount Shasta for three days, a little below the timber-line. It was a dark and stormy time, well calculated to test the skill and endurance of mountaineers. The snow-laden gale drove on night and day in hissing, blinding clouds, and, when at length it began to abate, he found that a small band of wild sheep had weathered the storm in the lee of a clump of dwarf pines a few yards above his storm-nest, where the snow was eight or ten feet deep. He was sheltered by a rock, and had blankets, bread, and fire. The sheep lay in the snow, without food, and with only the partial shelter of the short trees, yet made no sign of suffering or faint-heartedness.

In the months of May and June they bring forth their

young, in the most solitary and inaccessible crags, far above the nesting-rocks of the eagle. The beds of the ewes and lambs are frequently seen at an elevation of from twelve to thirteen thousand feet above sea-level. These beds are simply oval-shaped hollows, pawed out among loose, disintegrating rock-chips and sand, upon some sunny spot commanding a good outlook, and partially sheltered from the winds that sweep those lofty peaks almost without intermission. Such is the cradle of the little mountaineer, aloft in the very sky.

There he is rocked in storms, curtained in clouds, and sleeps in icy air; but, snugly wrapped in his overcoat, and nourished by a strong, warm mother, he is defended from the talons of the eagle and the fangs of the wolf, and grows apace. He soon learns to nibble the tufted rock-grasses and leaves of the white spiræa; his horns begin to shoot, and before summer is done he is strong and agile, and goes forth with the flock, watched by the same divine love that tends the more helpless human lamb in its warm cradle by the fireside.

The flock which Tom and Bob saw from their seat in the mountain took possession of the ledge below, and looked out upon the vast reach of country open to view with a lordly air of proprietorship. They were evidently unconscious of any danger. The simple creatures knew not of the two deadly weapons which the boys had now grasped. They had come up on to this rocky elevation, not in search of food, apparently, but to gratify their taste for dizzy precipices and perilous trails. They gazed out on the view placidly, and

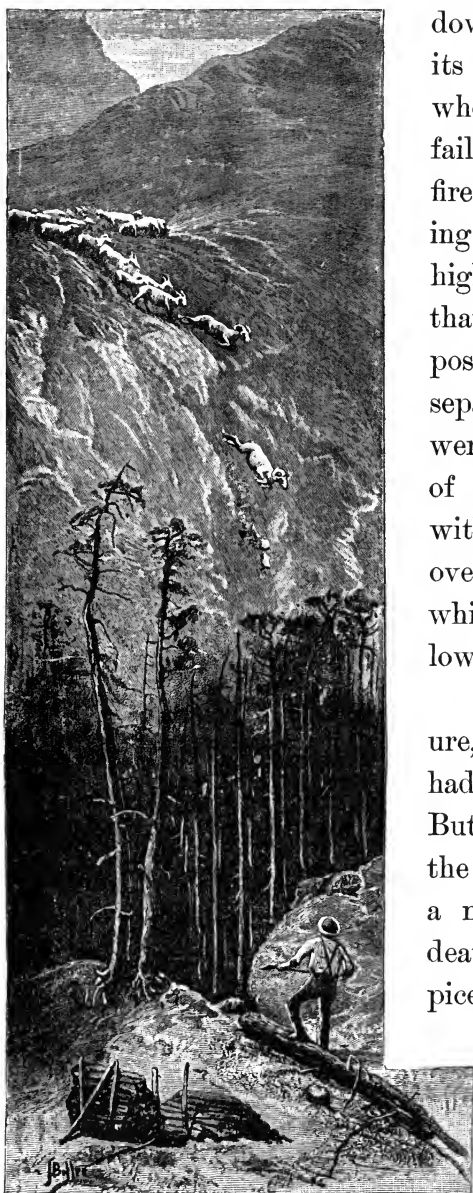
one of them curled himself on the ground to enjoy the situation with greater ease.

"Well," said Bob, "if a fellow should miss them he wouldn't deserve to have a popgun. I must have a shot."

He laid himself down flat and brought his rifle to his shoulder. Tom, also, prepared to fire.

"Wait a moment," Tom whispered, suddenly putting his rifle down. A new idea had occurred to him. The ledge, upon which he and Bob were, broke off in a precipice at the farther end, and at the other end sloped down into the loose rocks by which they had ascended. The next ledge lower down, on which the sheep were, was formed in almost exactly the same way. The farther end afforded no means of ascent to a higher point or of descent to a lower one—it was abruptly cut off by a vertical cliff. If, then, as Tom perceived, he and Bob could get down to the open end of the lower ledge unobserved, they could inclose the sheep and get not one or two but the whole flock, as it would then be within easier range and utterly unable to escape. There was possibly one disadvantage in this plan—the sheep might not wait for them to get down; but they decided to try it. The wind was in their favor, blowing away from the sheep in their direction; and, when they got to the bottom of the rocks and stood on the lower ledge, the flock had not moved; it was peacefully gazing over the broken surface of valley and mountain which filled the view. Now Tom's ingenuity was to be proved. They had six fine specimens of the big-horn as secure as in a pen.

Bob was the first to fire, and he triumphantly brought

*Leaping the Precipice.*

down his sheep, which leaped in its death-agony and fell. Tom, who was usually the better shot, failed, and, before either could fire a second time, the remaining five had disappeared, not higher up the mountain, for that, as we have seen, was impossible, owing to the precipice separating the two ledges, which were like giant steps in the face of the peak, but down, down, with a sudden, reckless spring, over the yet higher precipice which fell almost sheer to a still lower ledge.

Tom's plan had been a failure, and he was chagrined. They had missed the expected sport. But, if the sheep had escaped the rifles, they had plunged to a no less speedy and terrible death at the foot of the precipice, which was as nearly as possible vertical, and certainly not less than one hundred feet in depth.

Tom and Bob advanced along a lateral

wall from which they could see down to the bottom, and they expected to discover there the mangled remains of the five sheep which had eluded them. They could see nothing—not a single sheep, dead or alive.

“You saw them leap, didn’t you?” inquired Tom, in bewilderment.

“Saw them leap? Of course I did.”

“Well, where are they?”

They had plunged over the cliff beyond a doubt, and that such a leap could be made without injury seemed incredible. Still, what had become of them? The two boys crawled on to the ledge where a few moments before the sheep had been resting, and in the fine sand made by the disintegration of the rock they could see their foot-prints disappearing at the verge of the cliff.

“They must be at the bottom,” said Tom. “Come on, and we’ll see.”

Bob was reluctant to leave behind the one which his marksmanship had secured. But Tom told him that they could send Greene up for it afterward, and they descended the mountain together and made for the rocks where, according to their calculations, the five dead sheep should have been. It was an ugly place to alight on. The corners of the stones were as sharp as spikes, and these made the escape of any living thing striking upon them seem still more improbable.

“They couldn’t have come down; we must be mistaken,” said Tom.

He looked up the front of the precipice. There was no

intermediate ledge, no vegetation, nothing that would afford foot-hold or concealment.

"We've fooled ourselves. They must have got up the rock from the ledge on which we saw them. It was our excitement that made them seem to come down," added Tom.

"No, we didn't fool ourselves," answered Bob, positively. "I tell you they came down right here."

At this moment Bob pointed across the cañon. "There!" he exclaimed.

Between this side and the farther one there was a narrow, savage little river, one of the feeders of the South Platte, which struggled down its course and frothed against the numerous bowlders which opposed it. The object to which Bob pointed was a sheep leaping from boulder to boulder about a quarter of a mile farther up the stream. This sheep was followed by another and another, until four were visible, making their way across the stream, and up the opposite wall of the cañon.

"They can't be the same ones," said Tom, dubiously.

"Yes they are, too. What did I tell you?"

As Bob spoke, a fifth sheep became visible, and the little procession bounded with easy leaps up the rocks, among which they were soon lost to view. They had actually made this tremendous descent from the lower ledge on to the bristling rocks below without hurt!

How were they capable of a feat of this sort? Their horns are large enough at the base to cover all the upper portion of the head down to a level with the eyes, and their skulls are almost unbreakable. Old mountaineers say that the sheep

plunge head foremost, and that the brunt of the fall is received by the horns and the skull, which are strong enough to resist it without injury. But, as Professor Muir afterward told Tom, the other parts of the body would be injured by a great fall if the horns and skull were not; moreover, the ewes follow wherever the rams may lead, and their horns are mere spikes.

The true explanation, in Professor Muir's opinion, is simply this: The wide, posterior portion of the bottom of the foot, instead of wearing down and becoming flat and hard, like the feet of tame sheep and horses, bulges out in a soft, rubber-like pad or cushion, which not only grips and holds well on smooth rocks, but fits into small cavities, and down upon or against slight protuberances. Even the hardest portions of the edge of the hoof are comparatively soft and elastic; furthermore, the toes admit of an extraordinary amount of both lateral and vertical motion, allowing the foot to accommodate itself still more perfectly to the irregularities of rock-surfaces, and at the same time increasing the gripping power.

Thus, the sheep do not absolutely plunge over precipices, as it sometimes seems they do, but they are capable of retaining their foot-hold on a nearly perpendicular surface.

"In the fall of 1873," said the Professor, "I was tracing the South Fork of the San Joaquin up its wild cañon to its farthest glacier fountains. One afternoon I came to a valley strikingly wild and original in all its features, and perhaps never before touched by human foot.

"The gray, boulder-chafed river was singing loudly

through the valley, but above its roar I heard the deep booming of a water-fall, which drew me eagerly on. Emerging from the tangled space of groves and briers at the head of the valley, there, in full view, appeared the young San Joaquin fresh from its glacier fountains, falling white and free in a glorious cascade, between granite walls two thousand feet high. The steep incline down which the glad waters thundered seemed to bar all further progress. It was not long, however, before I discovered a crooked seam in the rock, by which I was enabled to climb to the edge of a terrace that crosses the cañon, and divides the cataract nearly in the middle. Here I sat down to take breath and make some entries in my note-book, taking advantage, at the same time, of my elevated position above the trees to gaze back over the valley into the heart of the noble landscape, little knowing the while what neighbors were near.

“After spending a few minutes in this way, I chanced to look across the fall, and there stood three sheep quietly observing me. Never did the sudden appearance of a mountain, or water-fall, or human friend, so forcibly seize and rivet my attention. Anxiety to observe accurately on so rare an occasion checked boisterous enthusiasm. Eagerly I marked the flowing undulations of their firm, braided muscles, their strong legs, ears, eyes, heads, their graceful, rounded necks, the color of their hair, and the bold, upsweeping, cycloidal curve of their noble horns. When they moved I devoured every gesture; while they, in no wise disconcerted either by my attention or by the tumultuous roar of the falling water, advanced deliberately alongside the rapids between

the two divisions of the cataract, turning now and then to look at me. Presently they came to a steep, ice-burnished acclivity, which they ascended by a quick succession of short, stiff-legged leaps, reaching the top without a struggle.

“This was the most startling feat of mountaineering I had ever witnessed, and, considering only the mechanics of the thing, one’s astonishment could hardly have been greater had they displayed wings and taken to flight. ‘Sure-footed mules’ on such ground would have fallen and rolled like loosened boulders. Many a time, where the slopes were far lower, I have been compelled to take off my shoes and stockings, tie them to my belt, and creep barefoot with the utmost caution. No wonder, then, that I watched the progress of these animal mountaineers with keen sympathy, and exulted in the boundless sufficiency of wild nature displayed in their invention, construction, and keeping.

“But judge the measure of my good fortune when, a few minutes later, I caught sight of a dozen more in one band, near the foot of the upper fall! They were standing on the same side of the river with me, distant only twenty-five or thirty yards, and looking as unworn and perfect as if created on the spot. It appeared by their tracks, which I had seen on the meadow, and by their present position, that when I came up the cañon they were all feeding together down in the valley, and in their haste to reach high ground, where they could look about them to ascertain the nature of the strange disturbance, they were divided, three ascending on one side of the river, the rest on the other. The main band, headed by an experienced chief, now began to cross the

rapids. This was another exciting feat; for, among all the varied experiences of mountaineers, the crossing of boisterous, rock-dashed torrents is found to be the most trying to the nerves. Yet these fine, brave fellows walked fearlessly to the brink, and jumped from boulder to boulder, holding themselves in perfect poise above the whirling, confusing current, as if they were doing nothing extraordinary.

“The immediate foreground of this rare picture was glossy, ice-burnished granite, traversed by a few bold lines in which grew rock-ferns and tufts of healthy bryanthus, with the gray cañon-walls on the sides, nobly sculptured and adorned with brown cedars and pines. In the distance were lofty peaks dipping into the azure, and in the middle ground was the snowy fall, the voice and soul of the landscape; fringing bushes beating time to its thunder-tones, the brave sheep in front of it; their gray forms slightly obscured in the spray, yet standing out in good heavy relief against the close white water—their huge horns rising and curving in the midst like the upturned roots of dead pine-trees, while the evening sunbeams streaming up the cañon gilded and glorified all. After crossing the river, the dauntless climbers, led on by their chief, at once began to scale the cañon-wall, turning now right, now left, in long, single file, keeping well apart out of one another’s way, and leaping in regular succession from crag to crag; now ascending slippery dome-curves, now walking leisurely along the edges of precipices, stopping, at times, to gaze down at me from some flat-topped rock, with heads held aslant, as if curious to learn what I thought about it, or whether I was likely to follow them.

After reaching the top of the wall, which at this place is somewhere between fifteen hundred and two thousand feet high, they were still visible against the sky as they lingered, looking down in groups of two or three, giving rare animation to the wilderness.

“Throughout the entire ascent they did not make a single awkward step, or an unsuccessful effort of any kind. I have frequently seen tame sheep in mountains jump upon a sloping rock-surface, hold on tremulously a few seconds, and fall back baffled and irresolute. But in the most trying situations, where the slightest inaccuracy would have resulted in destruction, these always seemed to move in comfortable reliance on their strength and skill. Moreover, each one of the flock, while following the guidance of the most experienced, climbed with intelligent independence as a perfect individual, capable of separate existence whenever it should wish or be compelled to withdraw from the little clan. The domestic sheep, on the contrary, is only a fraction of an animal, a whole flock being required to form an individual, just as numerous florets are required to make one complete sunflower.”

When Tom and Bob returned to camp, they sent Greene after the sheep, which had been left where it had been shot by Bob, who did not fail to show his own appreciation of his achievement, and who talked with more confidence than he had done since the accident on Gray's Peak.

But their supper was spoiled. While Greene was cooking the big-horn cutlets, a sort of food new to the boys, the prep-

aration of which they watched with deep interest—especially Bob, who looked on with that complacence which the hunter properly feels when his skill and prowess have been the means of provision—the mountains at the other side of the park were suddenly enveloped in a dark cloud, like rain. The day had been hot, and the discomfort caused by the heat had been increased in camp by the myriads of grasshoppers, which almost completely covered the ground and invaded every corner. If Dave had been awake he would have known that the dark cloud which swept down the mountains and rapidly approached the camp was not rain; but he was stretched out, fast asleep in his dog tent, quite indifferent to the appetizing-looking cutlets which were “sizzling” over the fire.

Down came the cloud, hurrying over the foot-hills and into the valley so swiftly and unexpectedly that the boys did not know what to make of it. In another moment it was upon them, and that instant the camp underwent an alarming transformation. Every tent was blown down, including Dave’s, in which he was seen desperately struggling to free himself; every hat was blown off; dishes, pans, and packs sped away as if on wheels; the cutlets which had been tenderly browning, “to be served with sauce Robert,” as Peter had suggested, were whirled out of sight in a shower of sparks; boxes were upset, and it was as much as the boys could do to keep themselves from being blown over.

It was as dark as if a London fog had descended; but it was not fog nor rain that had come upon them, but dust in a dense whirl, which the hurricane drove upon them with the force of a sand-blast. The sensation was absolutely painful:

the dust blinded them and even filled their mouths. They vaguely saw the articles of the outfit swept away out of sight, and it was useless to follow them, for they were immediately scattered in all directions.

Bob threw himself upon his collapsed tent and grappled with it as a sailor grapples with a top-sail as it is struck by a squall. Peter clutched his hat with both hands, and in doing so unconsciously seized his ears also, which were rather large, as Bob had occasionally informed him. Dave, having once extricated his head, and seen what the matter was, wisely withdrew it again and covered himself with his canvas. Tom wrestled with a pair of blankets which had been airing, and which, as the wind caught them, nearly lifted him off his feet. Greene heroically held on to the gridiron as his portion of the salvage—the gridiron upon which a few minutes before the cutlets had been. But, if the scene can be called amusing (and the participants in it did not think that it was), one figure in it was more comical than the rest.

Scissors, one of the pack-mules, had been tied up to a near tree, where he now stood with his head to the leeward. As it happened, nearly every article as it was borne away out of camp struck him somewhere about the hind-quarters, and, having merely given a few remonstrative kicks in the beginning, he resented the assault more vigorously when he found that it took the form of a continuous bombardment. He was like a seesaw, fixed through the middle as with an axle to a tree. Now his fore-legs were up and his hind-legs down; then his hind-legs were up and his fore-legs down; and he continued this reversal of movement as if all the world were full

of his foes, until he seemed like a piece of enormous clock-work.

Despite his own difficulties, Tom could not help laughing as he saw poor Scissors pounded by the flying outfit. But in another minute the ludicrous aspect which matters had begun to take was changed, and the camp was threatened with a more serious calamity than any which had yet befallen it. Tom saw his tent in a blaze, some red-hot cinders from Greene's fire having been blown upon it, and, before he could reach it, it was consumed. There were other things in the way of the flames, and he now called all hands to drag them to the windward, a matter which was only accomplished with great difficulty. Then the tornado weakened, and in an hour all its force was spent. The camp presented a sorry appearance at sunset, and the members of the expedition surveyed it lugubriously ; but before dark most of the articles which had been blown away were recovered — many of them from strange places, as, for instance, the tea-kettle, which was found suspended on the branch of a tree twenty feet above the ground.

CHAPTER VII.

UP AND DOWN SIERRA BLANCA.

ABOUT a week later our expedition crossed the mountains forming the southern boundary of the Park, and entered the Wet Mountain Valley, one of the most picturesque regions of Colorado. The flowers grow here with enchanting luxuriance, and the grasses nourish herds of cattle numbered by thousands.

When Eastern fields are being blistered by the heat in August, the vegetation in this valley is as fresh as in spring. The wheat grows as high as a man's head, and the wild fruit is in the greatest abundance—service-berries, cherries, plums, and raspberries. In all the country between Vancouver and Mexico there's not a prettier place, the settlers tell you, than this Wet Mountain Valley.

While they were encamped here the boys fell in with a detachment of the geographical expedition conducted by Lieutenant George M. Wheeler, and, introducing themselves as friends of Lieutenant Marshall, who had helped them so much with advice at the outset of their journey, and who himself had been associated with Lieutenant Wheeler, they were made welcome in the larger camp, the equipment of which they found to be very much like their own.

The two topographers of the party, Mr. Gilbert Thompson and Mr. Frank Carpenter, were preparing for a trip up Sierra Blanca, and Tom obtained permission to accompany them. Peter preferred to remain in the valley, as he wanted to write some matter for his newspaper; and Bob also decided to stay behind, for the purpose, as he pompously said, of "investigating" some of the mines in the adjacent Hardscrabble district.

Sierra Blanca is one of the hardest peaks to climb in the Rocky Mountains, and is one of the highest if not the highest. It is 14,464 feet above the sea-level. The next in height to it is Mount Harvard, with 14,384 feet; the next, Gray's, with 14,341 feet; the next, Mount Lincoln, with 14,296 feet; the next, Mount Wilson, with 14,280 feet; the next, Long's, with 14,271 feet; the next, Uncompahgre Peak, with 14,235 feet; and last, though it was once believed to be first, is Pike's Peak, with 14,146 feet.

From the summit of Sierra Blanca the greater portions of Colorado and New Mexico are embraced in the field of view; but it probably was *not* the reputation of the mountain for difficulty which induced Peter and Bob to let Tom go alone.

The Sierra is in the San Luis Park, and it was necessary for the explorers to cross the Sangre de Cristo Mountains to reach the foot of it, a journey which took them two days, though now it can be done in a few hours by the railway which crosses the range, at a height of over nine thousand feet above the level of the sea, through the Veta Pass. Now, there is a "Summit House," with tourists standing on the portico. Then, the range belonged to the primeval.



In the Sangre de Cristo Mountains.

Having reached the foot of the peak, which looms up magnificently in the valley, and seems as near twenty miles off as when the observer is almost within its shadow, the two topographers and Tom shouldered the instruments and began their ascent, leaving the animals where they could graze. At the end of the first hour the aneroid showed a vertical progress of one thousand feet, and at the end of another hour the party reached the timber-line. Up to this point they had been able to walk upright, but beyond it they had to cling and climb in quadrupedal postures.

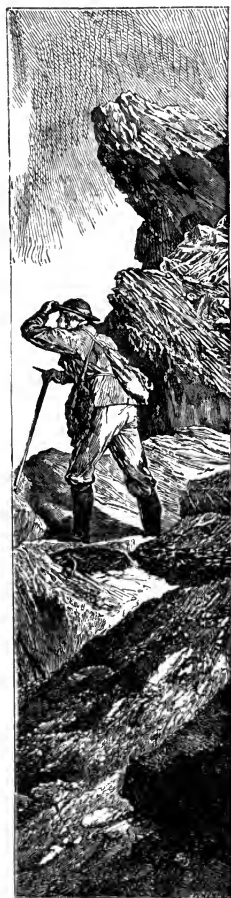
From afar the mountain had seemed to be formed of brown earth and sand; but on close acquaintance the particles of sand proved to be huge fragments of rock, with sharp and jagged edges, which an incautious footstep would have started down the mountain, to make a sepulchre whose walls would have borne neither epitaph nor inscription.

Minerals of the finest hues tempted the climbers to stay and gather. They saw flints colored and stained like rubies; green and blue veins in the quartz; red and black flecks in the granite; traces of copper; red seams which hinted of iron, and the whitish-gray sparkle betokening silver. Startled by the sound of their voices, the mountain-rat put forth his head, and, with a querulous "Peep-peep!" inquired the cause of this commotion. No other animal life was visible, but flowers were found wherever a handful of earth offered a slender hold, up to the top of the mountain. Neither cold nor sterility seemed to daunt these pretty things, and thousands of feet above, where the twisted evergreens, the pine and spruce and fir, died in despair, the blue and yellow and white blos-

soms were just as fresh and highly colored as in the lowland meadows.

Sierra Blanca consists not of one peak but of a cluster, each separated from the others by a saw-like ridge, and one of these ridges has to be crossed before the main peak can be reached. On one side were steep grades of detached rock threatening an avalanche, on the other was a precipice certainly not less than two thousand feet deep. In between two of the peaks was a park, in which on shelves, one above another, were four lakes, groves of spruce, stretches of grass, and many rivulets and cascades. Few mortal eyes have gazed upon this spot, and very few indeed have seen a landscape of greater charms.

It was near the close of day before the men reached the last and highest pinnacle between them and the summit. The summit was then scarcely more than a stone's-throw from them, but the intervening rocks were so difficult that it was half-past eight when they crawled upon it and saw all Colorado below them. Tired and almost breathless as they were, they gave a hearty cheer, and the echo glanced from peak to peak in the group, and over to the Sangre de Cristo, where it multiplied until the night was eloquent with voices.



Near the Top.

What next? Did they lie down to rest and to rhapsodize? Not a bit of it! The urgency of his duties will not allow the Western surveyor to be sentimental. He must drink in what beauty he can incidentally through his theodolite, where-with he tangles whole ranges in a geographical net-work for the map-maker; and, as soon as they had recovered their



The Top.

breath, the two members of the Wheeler expedition applied themselves to barometrical and astronomical observations, leaving Tom, as they said, to “do the poetry of the occasion.”

A ten-foot pole laid across the peak in any direction would lap over at each end. But exactly in its center was evidence of previous habitation. The broken rocks had been thrown

up into a wall, inclosing a hollow like an eagle's nest, in which some Indian sentinel had long ago crouched and scanned the horizon for his enemy. In this hole the three explorers proposed to shelter for the night. Lying down was out of the question. They had to squat, Indian fashion. They spread a rubber blanket over the floor to mollify the acute angles of the rocks, and they drew a Navajo blanket over them to shield themselves from the frost.

"Couldn't we have a fire?" said Tom.

"Certainly. If you will just walk down the mountain about half a vertical mile you'll find some wood," said Thompson, playfully.

Thompson is one of the most daring of mountaineers and cheeriest of companions; a kindly soul, whose spirit goes up as difficulties and discomforts increase. He pulled an extra bit of the blanket off himself to give it to Tom, who was chattering with the cold. Sleep was impossible, and by-and-by the party grew tired of watching and admiring the stars, which seemed to be within reach.

"It is cold," said Thompson, emphatically; "but I'd rather have this than the experience we had on the Colorado River in '75."

"What was that?" inquired Carpenter and Tom together.

As Tom afterward repeated the story to Peter, it was something as follows:

In 1875 Lieutenant Bergland's party was camped at Cottonwood Island, on the Colorado River, Arizona. It was the hottest time of the year, the thermometer recording 114° in

the shade, while the humidity was less than it is in the Great Desert of the Sahara. Yet any one looking at our camp would have supposed it to be comfortable. It was under a grove of unusually large cotton-woods; the wings of the loosely pitched tents swung in the wind, and there was a glimpse of the river. Altogether, it seemed to be a pleasant spot. Generally, there were some Indians stretched out asleep, with a wonderful lack of covering, one of them being a giant six and a half feet high. We were not much better than they in the matter of our clothing, which, having been once torn by the mesquite-bushes, had never been mended.

The sun burned the earth as with a branding-iron, and from time to time we went down to the river-bank for a "cooler." I now look back upon that camp, by that wonderful and most useless river of the West, with great pleasure, hot as it was. One may talk about civilization, but, when a man has received the glorious benediction of the sun and the stars in a barbarian camp, he is never tame again!

Several miles to the south of our camp rose Death, or Spirit Mountain, and many Indian legends cluster about it. The Mohaves hold it in great reverence as the abode of the spirits of their dead, and say that, should the white man step within its sacred limits, a great fire would break forth and destroy him. There, exalted to eternal honors, are the spirits of their warriors. It is also related that a flood once covered all the world except this mountain, and that all the people were destroyed save one large family, who

climbed to the summit, and, after the waters subsided, took all the cattle and went north, where they were turned from red to white.

We desired very much, as may be supposed, to explore this venerated spot, and, more than all, to ascend the peak, in spite of the direful results which were sure to follow. We even proposed that one should go ahead, as in war, to "draw the fire." To accomplish all this, however, was out of our power. A detail had to go to Camp Mohave for fresh supplies, which took nearly all our best animals, and it was a long journey to the western slope of the mountain, which presented the least difficulties for the ascent. So the fire is yet slumbering, to break forth at the impious invasion of the white man.

But a little might be done; we could, at least, gain a closer view of the magic ground. This was what Dr. Loew, one of the naturalists, and I attempted.

Starting as early as possible in the cool of the morning, the only things we carried, in addition to our instruments, were two canteens of water, not entirely for ourselves, as we knew that our mules would find a drink from the crown of our hats very acceptable in the heat of the day. I have seen the wildest animals become as gentle and as tame as a dog from thirst in the desert. They have come up to me and sniffed at the sound of the water in my canteen.

No one knows how much suffering and death there have been along the banks of this river from thirst. There are graves of men, one half-mile from its waters, who died crazed by thirst, while treading in a little circle, and tearing the

clothes from their bodies, with one only thought—water!—water! The strong succumb as quickly as the weak, and the Indian as well as the white. Forty-eight hours is generally the limit of endurance, and one man who had been without water for about that length of time told me that as often as he fainted his wife, who was far away, seemed to be holding a bowl of clear water to his lips.

When soldiers desert, no search is ever made for them. They generally surrender themselves, dry and repentant, at some military post.

We directed our course toward Newberry Peak, not inaptly named after the geologist, for it resembles an immense tooth in the fossil jaws of Death Mountain. Its altitude is about nine thousand feet above the general level, and we believed that it would afford an extensive view of the surrounding country. A steady gait for three hours brought us to its base, and we then had one canteen of water left. Picketing our mules to the last platform of level ground, we now had to take to foot-climbing. We divided the water, and generously allowed the poor animals to smell the cork.

To reach our perch, we had crossed a cañon which carried the drainage of the northern face of the mountain-group to the river, and, as I afterward learned, it was joined by a side-wash breaking through the serrated ridge we were on at a grand gate-way four hundred feet in height, and threading this was the trail to the enchanted ground.

It was 114° in the shade, and Dr. Loew vowed at the start that he was sure the geological strata at the bottom were of far greater interest and rarity than at the top. I

asked if he did not need assistance in collecting, and for once I wished I were a geologist. I promised to bring a specimen from the summit, and, after taking a pull at his canteen, I started up alone.

Imagine a peak twelve hundred feet high, made on the principle of putting the broken halves of egg-shells one upon another. Fortunately, they were seamed at the edges, affording fissures to wriggle up, and at intervals a grateful bit of shade. These were covered with the film of a dark substance like iron. Many times I thought the way was closed, but I was still able to continue upward until I attained the top, where a strange and wonderful landscape was spread out before me.

To the northward was the Cottonwood Valley, looking like an oasis with its groves of green trees; beyond could be seen the walls of the Black Cañon; in the east rose *mesas* of varied colors, crowned by the blue summits of the Cerbat Range; and to the south could be seen the Needles, threaded by the silvery river. The spurs and ridges of Death Mountain stood out from the main peak, and, as I saw them afterward, lighted up with the gorgeous rays of the sunset, I could but understand the legends of the Indians. Indeed, they seemed like a gathering of mighty chiefs, and were so desolate that I turned my eyes for relief to the grove of trees under whose shade I could see our tents.

The heat was terrible. After a couple of hours spent in sketching and reading angles, I had only to build a monument or cairn to complete my work. I found no mark to indicate that I had ever been preceded, but the stones were so hot that

they burned my fingers, and I could not do more than tumble a few together to inclose my records.

I tell you, boys, it was like an oven. I felt so faint and dizzy that I scarcely expected to get out of it. Talk about a night on the top of Sierra Blanca! Why, you ought to be ashamed of yourselves. This is luxury compared with that day of mine on Death Mountain.

The descent was made without incident, and when I reached the mules there was but one thought, to push directly for the river, as I was now suffering for water. I shall not soon forget how grateful it was to drink without stint. The doctor went out and sat down to his very lips in the river with all his clothes on, and yet, on arrival in camp an hour and a half later, his clothes were perfectly dry.

"Well, on the whole, I would prefer that to this," said Tom, as Thompson concluded his story.

In a short time it was sunrise, however, and all the night's discomfort passed out of mind as the great plains began to fill up with light, and the snows to melt, and the peaks to burn with resplendent colors. A few more observations were then made, and the party descended to their proper level. Carpenter had been very quiet, and when the reason of his silence was inquired for, he said:

"Oh, I have a grand scheme in my head, all about that little park near the mountain-top. Some day, when that lead of gold-bearing quartz which I discovered cropping out of Blanca's side is giving up its own, I shall build me a summer-house, a Villa Eden, just beyond the sound of the crushing of

the mills. The snow-bank shall be my refrigerator, where fish and game will keep frozen and fresh from year to year. The most hidden of the lakes, being roofed from the sun, shall be a skating-rink perpetually through the summer. Another lake, the highest of them, shall supply my chamber with pellucid water, and be the head of the fountain-jets which shall shimmer through the trees when the harvest-moon is rising. Steps will lead down from my piazza to a third basin in the rock, where an anchored gondola shall float, ready for such of my guests as would go a-fishing for trout in the day-time, or a-dreaming and a-rocking in the evening. Spiral stairways shall wander and climb to dizzy heights where, flying from the hot sun at noon, refuge can be found in the soft cloud-bath; and for music, low in the zephyr and loud in the storm-wind, fine wires shall be drawn from Blanca to its neighboring peaks, ready for the fingers of the ancient harper, *Æolus*."

At the end of this pretty speech his companions assured him that they would be most happy to occasionally accept his hospitality.

CHAPTER VIII.

PRINCIPALLY CONCERNING RATTLESNAKES.

THE topographers were to rejoin their party at Fort Garland, and Tom decided to accompany them that far.

On their way they had to cross a plateau northeastward of the mountain, and, while they were winding in and out among the sickly-looking sage-bushes which spread their tangled branches over the parched earth, they saw several rattlesnakes coiled up on the ground. One after another was found, and easily dispatched with the steel spikes on the legs of Thompson's tripod. The plateau was, indeed, infested with them, and Tom thought how undesirable a place it would be for a camp. He himself killed a large specimen, and put the fourteen rattles which belonged to it away in his pocket-book as a trophy.

His companions spoke of the fine opportunity it would afford "the doctor." Who was the doctor? Tom inquired. Why, the doctor was one of the members of their camp, the naturalist of the expedition, the pickler and preserver of all the odds and ends of animal life they came upon—one of the best fellows in the world, moreover, as both

Thompson and Carpenter declared in a single voice, with convincing emphasis.

It was a little strange that the object of this praise should appear a few minutes after it had been uttered, for the things we praise most are usually distant; but as they rode along they presently saw in the distance ahead of them a man jogging leisurely in the same direction as themselves. He was traveling slower than they were, and when they came nearer to him they identified him as being the doctor himself.

Now and then he was seen to pause, as if looking into the sage-bushes; once he alighted from his mule, and stooped over the ground; he had been in this attitude but a minute or two when he sprang backward as if to avoid an attack. When he recovered himself he saw the party approaching, and, recognizing Thompson and Carpenter, he waved a welcome to them with his *sombrero*, which they acknowledged with a terrific whoop.

As soon as they reached him, they saw that he had recently killed an enormous snake, a more valuable one than any they had seen, for it had two heads—a genuine hydra!

“Isn’t it a beauty?” said he, contemplating the yellow-gray reptile which was still vibrating in its death-throes. “Two heads are certainly better than one in this instance.”

“Though they haven’t saved their possessor from the rapacious naturalist of the Wheeler expedition,” added Carpenter.

The doctor, whose name was Yarrow—Dr. H. C. Yarrow—gathered up the snake in the *poncho*, or rubber blanket,

which was strapped to his saddle, and, remounting his mule, rode along with the others in the direction of the fort, which was still several miles distant. The conversation, meanwhile, as may be imagined, principally referred to rattlesnakes, and as the doctor was an authority on this subject he was kept busy with questions.

"Mine must have been a pretty old one," said Tom, showing the doctor his fourteen rattles.

"Not necessarily," was the answer; "the number of rattles, though increasing with age, is not a certain clew to the number of years a snake has lived. On the contrary, the increase depends largely on the vigor of the individual; and the purpose of this singular organ is a subject of much doubt. I can not see what use the rattle can be, either in procuring prey or avoiding enemies. It is not certain that it comes into play at all when the snake is after prey, but it is certain that it provokes and directs the attack of any enemy which the viper has occasion to fear."

"May it not be," Mr. Thompson suggested, "that it is a part of the snake's means of terrifying intended victims, and is used with other powers of fascination?"

"That may be questioned until it is proved that the creature possesses any powers of fascination at all sufficient to withhold its prey from flight; and the idea that it is intended as a warning to offset the venomous nature of the snake is unreasonable, as animals are endowed with qualities for their own good, irrespective of their results upon others. It has also been suggested that the rattle may be used to call the sexes together, and another supposition is

that it has no special functions, but has developed, in course of time, from the continual agitation of the tail.

"Only one fact concerning the rattle is established, which is, that it injures its possessor by provoking the attacks of those who can cope with it successfully."

All the questions which the doctor was asked need not be repeated here, as what he said in answer to them will indicate their purport.

"The principal enemies of the snake, besides man," he continued, "are wild hogs, peccaries, and deer. The latter kill it when it is coiled by striking it with the hoofs; the former attack it successfully with hoofs and teeth, and in some regions derive no small part of their subsistence from this source. The popular belief that the venom is innocuous to hogs is merely a partial statement of the fact that the fluid usually fails to enter the circulation through the layer of fat with which these animals are commonly covered. The venom is conceded to be innocuous when introduced to the stomach, and the flesh is as edible as that of other serpents. The fatality of the bite is by no means general, and the result depends altogether upon the amount of venom in store at the moment of striking, the vigor of the reptile at the time, the penetration of the tooth, the part of the body struck, and, finally, the health of the person attacked. No positive specific antidote is known.

"The venomous fluid injected into a wound made by the teeth has nothing to do with the ordinary saliva, as popularly supposed; nor does the forked tongue, or any of the numerous small teeth of the mouth, take part in the inflic-

tion of the wound. The tongue and smaller teeth are essentially the same as in any harmless serpent. The active instruments are a pair of fangs, one on each side of the upper jaw, rooted in the maxillary bones, which bear no other teeth. The fangs vary in size, being sometimes half an inch long, and are somewhat conical and scythe-shaped, with an extremely fine point.

"Though the fangs are hollow, the channels in them through which the poison passes are not as if a hole had been bored in the solid tooth. On the upper surface they form a groove which becomes a tube lower down.

"When not in use, they are protected by a sheath, and they rest like a sword in its scabbard. They are movable, and can either be raised or depressed at will. When they are raised for action the sheath slips off them, and gathers in folds at their base, like the finger of a glove.

"The poisonous fluid is secreted in a sac or reservoir lying against the skull and behind the eye, and, in a large snake, as much as fifteen drops of it are sometimes found. The force of the ejection is seen when the snake, striking wildly, misses its aim; a stream of the poison is thrown five or six feet. The snake prepares for action by throwing itself into a number of superimposed coils, upon which the neck and a few inches of the body lie loosely curved with the head elevated and the tail projecting and rapidly vibrating. At the approach of the intended victim, it thrusts its head forward and widely separates its jaws, bringing the fangs into position and relieving them of their sheath. As the blow is delivered and the fangs penetrate, the venom

gushes through the groove and tube, and the mouth drags at the wound with the whole weight of the snake's body. Sometimes the snake has difficulty in disengaging itself from the hold which it takes on its victim.

"But while the poisonous properties of these snakes can not be underrated, and great caution is necessary in capturing or killing them, the utmost range of their blow is less than their own length.

"They may readily be captured alive by pinning down the neck with a forked stick, and may be handled with impunity, when not too large and powerful, if seized immediately behind the head. A strong snake, however, has sufficient power of constriction to paralyze the muscles of both arms, as in the case of a person I knew who had seized two of these reptiles by the back of the neck. He had to be relieved by a by-stander.

"An interesting method of extracting the fangs is employed in the South. A silk handkerchief is fastened to the end of a pole and held toward the snake, which strikes fiercely at it. The fangs are caught in it, and a dexterous movement of the pole readily pulls them out of the jaws."

"Is it true that the rattlesnake, the prairie-dog, and the owl live together?" inquired Tom.

"No," said the doctor, emphatically. "That is one of the fables of the story-book. The rattlesnake sometimes takes refuge in the prairie-dog's hole, and repays the hospitality he receives by eating his entertainer."

"And is there really no antidote to the poison?"

"No positive antidote is known of."



Curing a Rattlesnake's Bite.

"I have read," said Tom, "that the Indian has what he considers a specific for the bite. It is said that wherever the rattlesnake is abundant, the 'black-root' will be found. This vegetable is always kept in the Indian's pouch. Wherever he goes he is provided with it, and it is believed to be an antidote to the poison of a bite.

"The horse has an instinctive disposition to examine closely anything that attracts his attention on the road he is traveling," continued Tom, reading from his note-book. "He will thrust his nose toward what surprises him, and follow the action with a strong puff of wind through his nostrils. If the object which excites his curiosity is a rattlesnake, it will instantly dart its fangs into the delicate membranes of the horse's nose. In a very few moments his sight becomes dim; he staggers from side to side, and, unless soon cured, dies.

"If the Indian is near with his black-root, recovery is not only possible but probable. Hoppling the injured animal, he throws him down and builds a fire, over which he makes a strong decoction of the vegetable, pouring some of the liquid over the wound and the remainder down the throat. In a very short time the poison is neutralized, the horse recovers his strength and spirits, and goes on his way as if nothing had happened."

"I don't believe it," said the doctor. "The poison is most deadly—so deadly that I have only to refer you, for an instance of its potency, to the manner in which some Indians poison their arrows. They take the hide of a freshly killed buffalo, antelope, or deer, with a coat of fat clinging to it, and, having previously gathered several rattlesnakes, they goad

the reptiles with a sharpened stick to strike at it. An arrow-head, dipped first in water and then in the hide stung by the snakes, is poisonous, even when the fat is completely dry and months old. The liver of animals is used in the same manner, and, according to frontiersmen, the moment it is struck by the snake it changes from its natural color to a light green."

The party had by this time reached the end of the plateau, and there before them lay the San Luis Valley, a great, yellow, treeless desert, bounded far away in the west by the Silver Mountains of the San Juan, and spreading southward into New Mexico.

It is the largest of the Colorado parks or valleys, its greatest length being about one hundred and forty miles, and its greatest width fifty miles. Its surface is as flat as a billiard-table, and the earth is either sand or adhesive clay. The mountains on all sides are high, but the streams that come down from them are absorbed in the porous soil.

Few things grow in the San Luis Valley, and those only close upon the shallow creeks.

It is one of Nature's failures, or at least the expression of a vindictive mood, interesting only in the manifold evidences it presents of different geological periods. Here a sandy ridge reminds the traveler of the drift, and there a sharp needle of basaltic formation points to fires long since burned out. In places the ground consists of decomposed granite that only needs water to fertilize it. Farther on huge boulders of scoria are strewn in every direction on the plains where they fell centuries ago, fresh from seething craters. The rattlesnakes



Securing Ibison for Arrows.

are plentiful, and rear their heads spitefully when disturbed, but otherwise animal life is scarce; all that is seen of it, perhaps, is a coyote sneaking across the trail, or an antelope bobbing away in the distance.

Human life, too, is infrequent. A train of wagons may be occasionally sighted, bearing emigrants into the new country or bringing bales of wool from New Mexico; but it is possible to enter the valley at one end and leave it at the other without meeting a soul.

As Tom and his companions saw it, the only cheerful thing in the valley was the American flag blowing like a flame over the brown mud-walls of Fort Garland.

Fort Garland, like all the Western outposts, is not an imposing example of military architecture. It is a square, built of sun-dried brick, in the sides of which the garrison is quartered. It is a pitiable life that both officers and men lead in such a place. They see few new faces, feel little of the movement of the world, and fall into a lethargy which extinguishes all their ambitions. Once in a while they are called out to punish the Indians for some outrage, and they are usually glad of this relief. Beyond an episode of this kind, which reduces their number from time to time, they have nothing to expect. There are frequent desertions among the men, who risk capture and severe punishment for the chance of an escape from the confinement and dull surroundings.

"I would rather be a prisoner in an Eastern jail than a free man at Fort Garland," said one of the soldiers to Tom.

Tom was made welcome among both officers and men, and

spent many hours with the former in their quarters, which were profusely decorated with buffalo-robcs, implements of Indian archery, and mementos of the chase. He was invited to stay longer, but he had to rejoin Bob and Peter at Rosita, and one morning he started out on his journey, which was safe, but too lonely to be pleasant.

He had to recross the plateau on which the rattlesnakes had been found; few of them were now to be seen, for the day was overcast and cold; and he drew up for the night in a cañon which sloped up into the Sangre de Cristo Mountains.

Though the San Luis Valley with its arid surface was not more than sixteen miles away, there was no scarceness of verdure here. The bottom of the cañon was covered with rich grass, and up the sides grew the ever-grateful cottonwood, with its beautiful foliage and silvery-gray bark. He picketed his mule where the grass was longest, after taking it down to the water which rushed by, fresh from the mountains, and then he made a fire for himself.

Thompson had given him some venison, and he cooked this on the point of his hunting-knife. He had some hard-tack in his saddle-bags. How deliciously tender and full of flavor the venison was as he sat down and munched it! How sweet the hard-tack! This was the proper food for philosophers, and contented thoughts lodged with Tom as he ground it and moistened it with a brownish solution which he called coffee.

The situation proved to be a little solitary as night closed down upon the cañon, and the belt of stars across the two walls showed how narrow the gulf was in which he lay. The

trees tossed wildly, and the wind moaned among them. The shadows shot themselves into the shape of giants and shrunk into dwarfs as the fire burned high and low. Once Tom heard a distinct growl in the woods, and grasped his rifle as he peered around. But the bear did not reveal himself; having made his discontent known, he had slunk off to his lair. What little uneasiness Tom felt at the approach of darkness soon passed away, and he prepared to sleep.

He had only one blanket, and that he had bought off the sutler at Fort Garland. He had thoughtlessly left his own camp without providing himself. But he knew of something as good as two more blankets. He had posted himself in front of a large bowlder, twice as high and twice as long as himself. He piled the fire up all along this, and let it burn until the ground was baked and the rock had absorbed much of the heat. Then he swept the cinders away, spread his saddle-blanket where they had been, and, wrapping himself in the other blanket, lay down to sleep.

He slept long and soundly. When he awoke his fire had gone out, and he was chattering with the cold. It was broad daylight, and great white storm-clouds were bridging the cañon. A mouthful of the biscuit and a slice of the cold venison served him for breakfast, and a hard day's ride brought him to his friends at Rosita.

CHAPTER IX.

MR. BOB'S SECOND MISHAP.

It seemed like getting home to be in the little camp again, with its five white tents pitched in a hollow square. Dave was seated before his tent, mending the pack-saddles, as usual; Greene was talking to himself as he busied himself over the fire in the middle of the square; Peter was stretched out under his canvas, industriously writing a letter for his paper; and Bob was classifying and labeling a lot of minerals.

Though Tom had been absent only a few days, there was plenty of news for him. Bob had received the offer of a position as assayer to one of the largest mines in the Hardscrabble district, with the option of entering on its duties immediately or at the close of the present trip, and he had decided to accept it, and to begin his duties the following spring. The salary was to be a large one. Peter had received a check from the editor of the newspaper for which he was writing, and a note saying that his contributions were admirably done, but that his account of the accident on Gray's Peak seemed to be a little exaggerated—"too highly colored," as the editor put it; though, as a matter of fact, Peter had toned down rather than heightened the thrilling effect of that experience.

"How much is the salary to be, Bob?" asked Tom.

"Eighteen hundred dollars a year to begin with, and an annual increase."

"You're in luck, and I congratulate you."

Bob seemed to accept the congratulations with an air of humility, which was not characteristic of him. He was dejected and disposed to be silent. Tom noticed this by-and-by.

"What's the matter, old fellow?" he inquired.

"He's had another accident," said Peter.

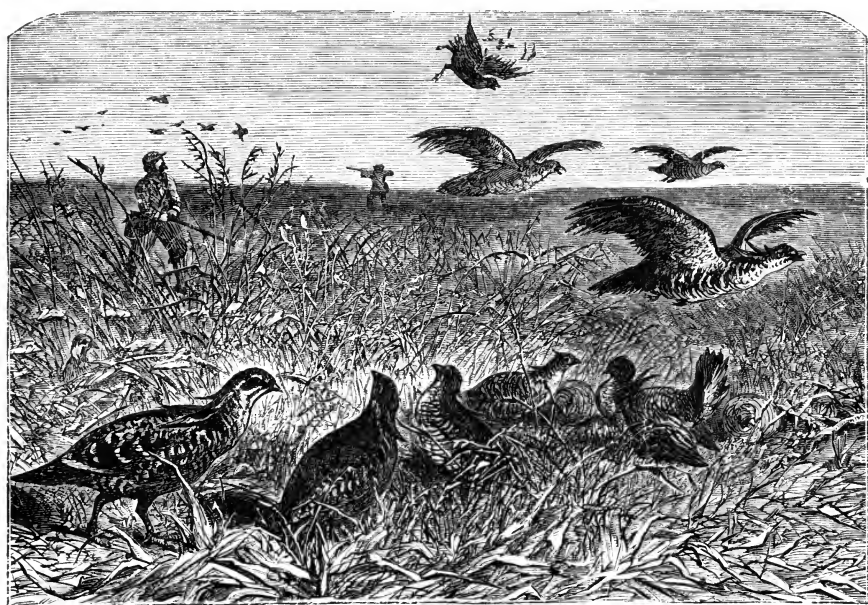
"It hasn't hurt him much, as far as I can see; but tell me about it."

Bob would rather have let the subject drop, but Tom pressed him, and he gave an account of the affair himself.

While he had been at the mines, some of the gentlemen connected with them had proposed a buffalo-hunt, and invited him to accompany them. They went about one hundred miles eastward on the Atchison, Topeka, and Santa Fé Railway, and then struck out southward. They found plenty of shooting among the prairie-hens, and soon fell in with buffalo. Bob was one of the first to bring down one of a large herd.

"Buffalo isn't hard to shoot," he remarked, aside, with pathetic modesty. "They stand stupidly looking at you if you approach them cautiously, and, even when they are fired at and one of them falls, the others do not immediately take to flight. When they perceive danger they are as timid as the antelope, but it takes a good deal to open their eyes to anything. So I don't claim much credit for the one I shot; nobody could have missed him.

"Well, we got as many as we wanted. It seemed like old times, Major Osborne, who was with us, said, so plentiful were the shaggy beasts. We camped among them, and shot them as we pleased; they put themselves in our way, and would not be driven off. They were so spiritless, in fact, that we almost felt ashamed of ourselves for killing them.



Prairie-Hens.

"One morning we saw a curious incident. A herd appeared but a short distance away from our camp, followed by two wolves. A calf which had been deserted by its mother had difficulty in keeping up with the rest, and the wolves evidently had made up their minds that it should be their first victim. But as often as it dropped behind from fatigue,

the bulls of the herd closed around it, and with heads down to the ground and horns pointed, kept off the pursuers until it had recovered strength enough to continue the retreat.

"I was so much interested in this incident that I sprang upon my horse, one which the people at the mine had loaned me, and followed the herd alone. 'Don't lose yourself,' Major Osborne cried, as he saw me going; but I said, 'No fear,' and it seemed to me that I knew enough to be trusted as far as I intended to go.

"Besides," continued Bob, "Major Osborne laughed when he spoke, and evidently intended to ridicule me. But I soon forgot about him as I galloped after the buffalo, and saw the old bulls repeat their manœuvre to protect the calf. I gained on the herd, and when I was near enough fired at the wolves. I don't think they had seen me before this, but, instead of being alarmed at my shot, they seemed so determined to get the calf that they still kept on after it, standing at bay from time to time as the bulls reformed their circle.

"I didn't notice the time, but I think it was about an hour after I had left the camp, that I shot one of the wolves."

"What! with your second shot?" exclaimed Tom.

"No, not with the second one. I'd been firing pretty frequently, without hitting anything. Well, I *did* kill one of them, and the other wolf then gave up the chase and sneaked off to the left, leaving the herd to continue in the direction which it had been taking. I was tired, and dismounted to rest a while. I was thirsty, too, but when I took hold of my canteen, which was strapped on to the saddle, and shook it, there was only the hollow sound of a few drops of yester-

day's water in it. It was going to be a very hot day. The sky hadn't a cloud in it, and there was scarcely any wind.

"I cut off the wolf's head—it's at a taxidermist's in Denver now—and then jumped into my saddle again. I was surprised to find how indistinct the trail of the herd was; the hoofs of the buffalo had left only a few dents in the sand of the plain, but I had no doubt that I could follow them back to where I had left the camp. I rode on at an easy 'lope,' and as, at the end of an hour, I didn't see any signs of the camp, it seemed to me that I must have chased the wolves farther than I had supposed. I looked about carefully, and pulled up now and then to take in the situation. There was nothing in sight, only the sky overhead and the plains. You know what they are like—how one part looks just like another."

Bob's voice trembled as he spoke:

"I rode on without seeming to move, as far as the appearance of the landscape was concerned, and the farther I went the more I spurred my horse. It was noon, and the sun was scorching, when I looked down and could see the buffalo-trail no longer. I knew now that I must have passed the place where the camp was.

"Was I scared? Yes. I lost my head, and, though I tried to collect my thoughts and to think what I should do, I could not fix my mind on anything. I could only keep going. It's an awful thing to be lost on the plains. It seemed to me that the camp must be somewhere on my left, and I pressed forward in that direction. I looked for the trail again, but I could see neither the prints of the buffalo-hoofs nor of my own horse.

"I was hungry; I had started out before breakfast, but I didn't care about that. The water in my canteen would not have filled a wine-glass, and I wanted water more than anything else. Do you know what it is to be really thirsty, Tom? It's horrible! My tongue seemed too large for my mouth, and I had to put it out like a dog's. My throat burned as if it had been scalded. Though I dug my spurs into the poor horse as often as it lagged, I ceased to think about camp, and my mind dwelt on the one thing—water.

"Pictures floated before me of water in every form. I saw oceans, cascades, rivers, and wells. I heard the sound of water lapping in among the sedge along a river's bank, and the patter of rain against a window. I saw the wash of the shower flowing down the panes, and condemned myself for having cared so little for it before. Then I thought of the wet and sloppy streets of a city, and it seemed that it would have been a boon to bend down and lick up the puddles.

"I went on in this way all the afternoon, and still no change came over the scene. There was the rough, yellowish land, nearly level, except where the rocky hog's-backs stood out; the distant horizon; the cloudless sky; the same lifeless waste wherever I looked. But the sun was getting down, and the heat was less, though my sufferings did not decrease with it.

"I did not notice how nearly exhausted my horse was, and I scolded savagely when he tripped or balked, as he often did. But at last he broke down altogether. He stumbled against a bowlder at the foot of one of the hog's-backs and fell over with me. Neither of us was much hurt,

though I thought he had broken one of his legs, for he lay there as if dead; and I, too, lay where I had fallen, not having spirit enough to move. I stroked my forehead, and it seemed to be my mother who was doing it, and I murmured, 'Poor boy!' as she would have done. I saw a rattlesnake creep by me, but I did not molest it. I don't believe I would have cared if it had struck at me. I talked to myself continually, though it was pain to do so.

"The sun had got well down, when a cool wind swept over the plains, which revived me, and I found I had strength enough to climb to the top of the hog's-back. As I moved from where I had been lying, my horse staggered to his feet and followed me up the rocks as if he had been a dog, looking at me so sorrowfully that I went to him and tried to help him up. When I reached the top I could at first see nothing except the plains and the red bars of light where the sun was sinking, over in the west. I burst into tears—yes, and I'm not ashamed of it. I thought of pictures which I had seen of dreary moorland landscapes in the twilight, and it seemed to me that such a little hovel as is usually found in the background of them would have made a paradise of these pitiless plains.

"I threw myself down again; I did not care what happened to me, and I fell into a stupor in which I lay for an hour or more. It was dark when I awoke, and the stars were shining. I looked around me, feeling as if I were a castaway at sea.

"But shortly I saw a flush in the western sky, a rosy reflection, which I mistook for the fading rays of the sun.

As I watched it more closely, however, I saw it waver: now it was dim, now bright. 'It's perhaps a fire,' I said to myself, joyfully. I didn't fear Indians; any human beings would have been welcome to me at that time. I scrambled over the rocks to find fuel for an answering blaze; I plucked up the scanty tufts of grass and broke up branches of the sage-bushes. Then I applied my match, and I trembled all over as I did so. It lighted, but the fire burned miserably; I was afraid it would not be seen. I took the silk scarf that mother gave me, and put that on it to increase the blaze; everything I had that would burn I threw on it, and I stood over it, fanning it with my coat, out of which I had already torn the lining for fuel. I rushed wildly about for more grass, but the sage-wood was like peat, and would not blaze. I saw the grass rapidly consumed, and then all I could get was smoke. I felt sure that it was of no use.

"For several minutes the fire which I had seen continued without increasing, but then it flashed higher and higher, and I heard several pistol or rifle shots.

"It was our camp; I had been traveling round it and round it all day. I tell you, Tom, it shook me up, that experience. I would rather slip down Gray's Peak again, and even go over the precipice, than be lost on the plains."

"You had a narrow escape," said Tom. "But I've got in my note-book some advice given by Colonel Richard Irving Dodge, in his book on *"The Plains and their Inhabitants,"* which is so practical that I wish all the members of the camp would commit it to memory. It may save them from such a mishap as Bob's."

Tom then read the following notes :

“To persons unaccustomed to plains-life, who come out on short visits of business or pleasure, the likelihood of getting lost from party or camp is a serious drawback. Every such person should provide himself, before starting on a journey, with a compass and an outline map of the country which he proposes to visit. The most serviceable compass for such use is a not too freely balanced needle contained in a circular brass box about two inches in diameter, with a spring to unship the needle when not in use.

“Such a box should be carried in the pocket habitually, so as to preclude any chance of its being forgotten or left behind by accident.

“The map should show the larger streams and their most prominent tributaries.

“The position of each camp should be located on the map as accurately as possible ; and the line of each day's travel, and the probable position of the evening camp, should be marked in pencil on the map before starting each morning. Where several persons are journeying or hunting together, the map of each should be a fac-simile of the others, and the person directing operations should see that each day's march is marked on each map, and that all maps are marked alike.

“With these precautions, and the exercise of a little common sense, individuals may wander off with perfect safety on each side of the line of travel, or for miles about the camp, hunting or sight-seeing.

“If, in spite of all precautions, the novice should be unable to find his camp or party after so long a search that he

begins to suspect that he is lost, there is still no cause for alarm, provided he is true to himself.

"The shock of realizing that one is lost has a tendency to unsettle some natures. It is most important, therefore, that he who suspects that he may be lost, should make every effort to keep cool and to maintain perfect control of himself. The first thing to do is to get upon the highest ground in the vicinity, and from it make a deliberate and careful survey of the country, noting the direction of the larger ravines.

"Not unfrequently their appearance and direction will supply the missing link in his consciousness, and enable him to get back into the system of radii for which he is looking. If not, his map should be spread out upon the ground, with the compass placed upon it, and both should be so turned that the north of the map coincides with the direction of the needle. He should then, by going back in thought over the day's travel, working out his turnings, etc., try to locate on the map the position he occupies.

"Placing the center of the compass over the point so located (its north still coinciding with the north of the map), he should next take the direction of his camp and estimate the probable distance.

"All this must be done with great care. . . . If, when the estimated distance has been traveled, neither camp nor any recognized ground has been discovered, the lost man should fire his gun several times and wait for an answering shot. If there is no answer, he should select the highest point in the vicinity, collect fuel, and try fire. Indians use smoke for signals; white men fire. It would not be safe to make

a smoke if the presence of Indians were suspected ; but, when not in an Indian country, the lost man should smother his fire occasionally with grass, so as to make as much smoke as possible.

“If night should overtake him, he should keep up as large and as bright a flame as possible, and look for an answering blaze. If all fail, he should waste no further time in looking for his camp, but, adjusting his map and compass as heretofore described, he should make for the nearest large stream, and follow it up or down, to reach the nearest settlements.

“No man should ever leave his camp or party without his arms and a plentiful supply of ammunition and matches. With these he can always manage to keep himself without suffering, even on a solitary journey of a week or two.”

Tom was justified, by his larger experience, in taking the position of monitor over his two friends ; but I do not wish it to be supposed that he never fell into error himself. He was paternal in his manner, but he was never patronizing, and when he made mistakes he confessed them with charming frankness. He admitted to Bob and Peter how foolish he had been in leaving camp on his trip with Carpenter and Thompson without taking some blankets with him ; and he thanked Dave for the lesson by which he had profited in warming his bed-place that night in the cañon of the Sangre de Cristo. But, like most boys of ability, he was impetuous, and occasionally plunged into things without the calm consideration which would have saved Bob from his two mis-haps, and which is one of the surest elements of success.

From Rosita the party moved in the direction of the Huerfano Park, where Tom wanted to see some of the cattle-ranches; and one day the camp was visited by two half-savage-looking Mexicans from the little settlement of Badito. They were of the class which has done nearly as much to paralyze New Mexico and Arizona as the Indians: dark-eyed, bushy-browed, raven-haired vagabonds, with skins of the texture and complexions of the color of tanned leather.

In the afternoon Tom, with his two friends and Dave, started out to visit one of the ranches, leaving Greene in charge of the camp, and ordering him to look out for the Mexicans.

"Never yo' feah," said Greene; "I know what dem greasers is: dey'd steal a red-hot stove, dey would, ef it was cool enough to be toted."

Greene was watchful for perhaps an hour or so; but he then took a line and some grasshoppers, and went down to the river, hoping to get some trout. When he returned the Mexicans had disappeared, and two of the mules also.

"James River!" he exclaimed, when he discovered the results of his neglect—this being the only expletive he ever used—"dem greasers done gone an' stampeded dem dar mules."

The instinct to follow them was but a momentary one. Besides, the trail puzzled him: one mule had apparently been driven in the direction of Badito, and the other northward, along the road to Pueblo.

"Reckon I can't go two ways at once," he said to himself; and, acting under this conviction, he soon recovered from the alarm which he had at first experienced, and set about pre-

paring supper (to the materials for which his angling had added one trout, about five inches long) just as cheerfully as if he had not been responsible for the loss of two valuable animals.

"Yo's a derlicious fish, sho," he observed to the trout, as he put the small specimen on the gridiron, "an' I guess this hyar outfit 'll be mighty grateful for yo'r flavor."

But, when the "outfit" returned and learned what had happened, it was not in a humor to find any sweetness in the supper. Dave took hold of Greene and shook him as if he had been a rat in the jaws of a terrier, though he was a heavily-built man. What Dave said is not repeatable. He buried the delinquent cook under epithets of abuse which seemed like pieces of masonry, they were so massive.

But Tom did not propose to let the animals go without making an effort for their recovery. Though it was darkening when he returned to camp, he made up his mind to strike out after the thieves immediately. Dave advised him to wait till morning; but he remembered what Lieutenant Marshall had done under similar circumstances—how promptly that officer had pursued the thieves, following them for several hundred miles, and he insisted on going at once.



Dave.

Dave filled his cartridge-belt, borrowed an extra revolver, and took his carbine with him. Tom also armed himself abundantly, and, while he went in the direction of Pueblo, he sent Dave toward Badito. The little settlement was the eastern entrance of one of the best passes in the Sangre de Cristo Mountains. It was quite dark when they departed, and Dave protested that all he could do was to go to Badito, make inquiries there, and wait till morning.

"Do the best you can—I leave it to you to decide what the best is," said Tom, as he galloped off.

The tents were pitched a few yards away from the main road which leads from Colorado to New Mexico. Close by was the solitary peak, rising out of the green plain, which gives the valley its name (the Orphan), and in the south were the Spanish Peaks, two of the noblest mountains in the world.

At about two o'clock, Bob and Peter heard the sound of hoofs approaching from the direction in which Tom had started two hours before, and they supposed that it was him returning to camp; but, instead of halting, the rider galloped past the tents without drawing his rein in the least, and soon disappeared in the darkness southward.

Travelers were not so common in this country that one moving alone in such a fashion did not excite the curiosity of the boys.

"One of the thieves, perhaps," Peter suggested.

"Or a deserter from one of the forts," added Bob.

But it was neither a thief nor a deserter. It was Tom himself, and a strange thing had happened to him.

About four hours after leaving camp he saw lights ahead,

and presently rode into a little Mexican village, with its flat, unshapely adobe dwellings. He did not know the name of it, and had not been aware that such a place was on the road. A door stood open, and before it was a mule, saddled and bridled. He looked at the animal closely, and thought he recognized it. He listened, and heard among the voices within, one which sounded like Dave's. He did not dare to alight, for he was surrounded by a pack of the snarling, yelping curs, half dog and half coyote, which infest the villages of the New Mexicans; but he called aloud, "O Dave! O Dave!"

A burly figure appeared at the door, and in a familiar voice responded, "Hello, thar!"

The man held up a lantern, and, as soon as he recognized Tom, fell back in astonishment.

"Waal, Mr. Smart! Ye don't mean to say ye've got 'em?"

"No," answered Tom; "but how did you get here?"

"Right along the road."

"Didn't you go to Badito?"

"Didn't I go ter Badito? Waal, yes."

"How did you get here, then, I say?" Tom repeated.

"Git hyar? Why, this is Badito."

Tom was silent; he could not understand it. Since he left camp he had been steadily riding at a good speed in a direction exactly opposite to that which would have brought him to this village, and yet the Mexicans, who now crowded the door, also assured him that it was Badito. He was bewildered. "I've been riding toward Apache Creek for the last four hours," he said.

"Must hev got turned somehow," remarked Dave.

The more Tom thought about it, the less easy it seemed to account for it, and he went to bed with his brain in a whirl.

In the middle of the night the solution of the mystery occurred to him. Some time after leaving camp his mule had become obstinate, and he had whipped it over the head, causing it to swing around as if on a pivot. When these gyrations ceased, he had started off in the reverse direction to that which he had previously been taking, and thus he had passed through his own camp, and at last arrived at Badito.

Nothing was known there of the stolen mules, and in the morning Tom and Dave returned to camp.

That afternoon, however, a detachment of cavalry was met, going toward Pueblo, with three Mexican prisoners, including one of the two men who had been loafing about the camp on the previous day. They belonged to a gang of cattle-thieves, and had been caught that morning. One mule had been captured with them, and this belonged to our friends, to whom the officer in charge restored it without hesitation.

CHAPTER X.

COLORADO HIGHWAYS.

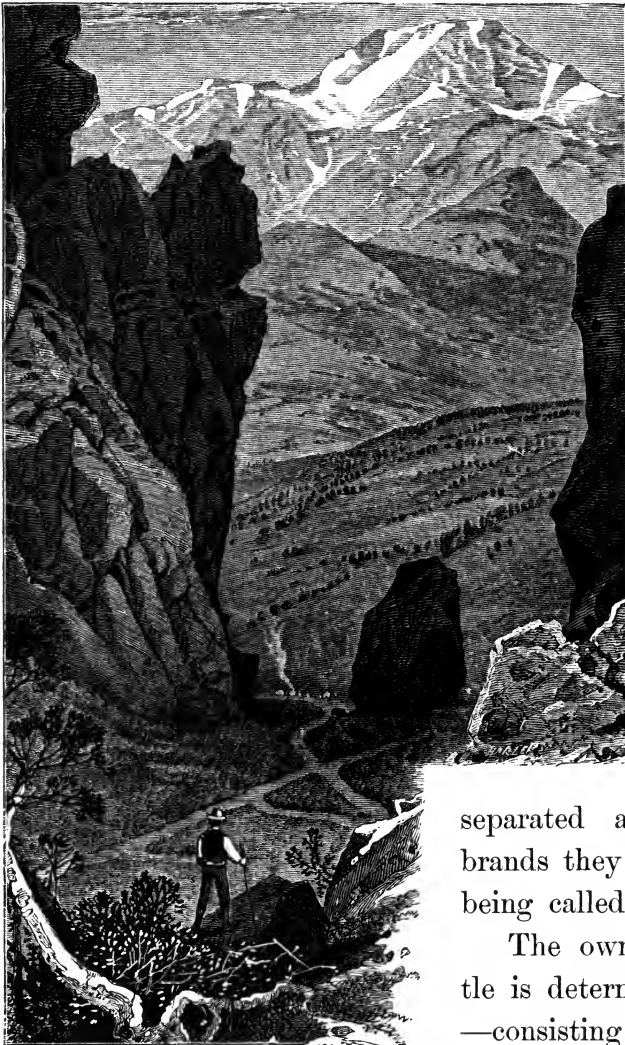
THE course of the expedition now lay northward to Denver, and on the way the boys proposed to "do" Pike's Peak, Monument Park, and the Garden of the Gods.

Here and there they visited a ranch, and at each Tom learned something which promised to be of use to him in the choice of a location and the management of cattle, should he purchase a place of his own, as he contemplated doing.

He found that stock-raising needs a large capital, however. Ten thousand dollars is a small amount to put into it, and many persons have from fifty thousand to a quarter of a million dollars invested. But the profits are usually large, and it is not uncommon for a capital of fifty thousand dollars or more to double itself in five years.

Occasionally the expedition fell in with the cow-boys.

Where the cattle range, as on the plains, without fences or other boundaries to hold them in, the cow-boys are indispensable to the ranch-owners. Living in the saddle and sleeping on the ground, they follow the herd as often as it needs new pasturage, and are always ready for a change of quarters. At times the herd gets away, in spite of their



*Pike's Peak, from the Garden of the Gods,
Colorado.*

vigilance, and a "round-up" becomes necessary. This takes place in the spring, when, by the agreement of the ranchmen, some place in each county is designated to which all stray cattle shall be driven. When the cattle have been gathered in, or "rounded up," they are separated according to the brands they bear, this process being called "cutting out."

The ownership of all cattle is determined by a brand—consisting of initials or some device—burned into the shoulders of the animals, and all

ranchmen are required to specify in the books of the county clerk what initials or devices they have chosen, and the num-

ber of animals they have thus marked. When they sell, they do so "by brand," the transfer being recorded, and having the same effect as a warranty-deed of real estate. Unbranded animals are called "mavericks," and are sold for the benefit of the school-fund of the State.

When the cattle have been divided into herds again, the cow-boys take them to their respective ranches, and they usually celebrate the occasion in their own peculiar way.

Thinking the matter over as he rode along, Tom saw himself, in a vision, the honored and stalwart proprietor of a ranch, standing, at the close of day, in the door-way of his log-house, with its rough-looking out-buildings of poles lashed together with rawhide, and gazing over a fair domain which reached out to the mountains, and which, with a magnificent sense of possession, he knew to be his own. The dream was so vivid that he seemed to feel the pure air blown over the pastures, and to hear the voices of the men who were doing his bidding.

A cry from Bob awoke him. About an eighth of a mile in front of the advancing party, a coyote was seen in hot pursuit of a jack-rabbit. It was an exciting chase. The two animals were well matched in speed, but the rabbit was beginning to show signs of exhaustion. The party reined in their animals to watch, and they pitied poor Jack Rabbit as they saw his enemy gaining on him. A second coyote appeared on the scene, and endeavored to turn the rabbit as a hound does a hare in English coursing; but, with a fresh spurt, the rabbit evaded him, and a little distance farther on safely disappeared into his burrow. The boys cheered as they

saw his escape, and each fired a shot at the coyotes, which slouched away in the direction of the foot-hills.



A "Round-up."

The mountains lay to the westward like an impregnable wall. Behind the front range higher peaks could be seen, glistening like silver.

"One of the most striking features to the traveler in our

extensive and inhospitable interior country," an old explorer has written, "is the vast field of mountains which everywhere meets the eye. These mountains are sometimes formidable and united, their summits being perpetually enveloped in snow; but more generally they are broken and disconnected, or partially united by projecting spurs or low connecting ridges, retaining snow but a portion of the year."

One can well understand the dismay with which the old travelers from the East saw them opposing further progress in the long march to the Pacific. But, as we now know, there are many passes through them, and the Government surveyor has stood on most of them.

"The summit of the Grand Peak, which was entirely bare and covered with snow," wrote Major Pike, the discoverer of the famous mountain which bears his name, and to which he refers, "now appeared at a distance of fifteen or sixteen miles from us, and as high again as what we had ascended, and would have taken a whole day's march to arrive at its base, when I believe no human being could have ascended its pinicle."

But Pike's is one of the easiest of peaks to ascend, and the summit is as much frequented by tourists as Mount Washington is. At the top there is a signal-service station, and four men live up there all the year round, linked to the world by a telegraph-wire which spans the mountain's fastnesses.

Continuing his chronicle, the major wrote in his report: "The perpendicular height of the mountain from the level of the prairie was 10,581 feet, and, admitting that the prairie

was 8,000 feet from the level of the sea, it would make the elevation of this peak 18,581 feet."

But it is seventy years since these words were written, and repeated measurements have brought the height of Pike's Peak down to fourteen thousand and some odd feet. Nevertheless, it is visible miles and miles away over the plains. The emigrants of old saw it long before its companions appeared above the horizon, and they gathered fresh courage as the blazing sun transmuted its tempest-torn granite into a pyramid of gold. As far north as Cheyenne, and as far south as Trinidad, on the borders of New Mexico, it can still be seen, its boldness subdued in the gray of the distance; and, as the traveler glances at it through openings in the hills at its base, from the windows of the car, he seems to be under its very shadow, when it is in reality thirty or forty miles off.

The boys left Dave and Greene in camp, and started out to make the ascent alone. They could see by the trail that some one had preceded them that morning, but this was not a surprising thing, for the peak, as we have said, has become one of the "objects of interest" which nearly all tourists in Colorado visit.

They went up the winding trail, singing with the gladness of the clear, beautiful morning, and breathing the tonic scent of the pines. Tom alighted now and then to pluck a wild flower, and put it away in a book which he kept for the purpose; Peter made notes of this and that feature which suggested something to be written about in his next letter; and Bob chipped at the rocks with his hammer, and imparted various learned remarks to his friends

with the manner of a *savant*. At noon they rested and made a luncheon of crackers and sardines and the clear water of one of the mountain brooklets.

The day had now become hot, and their progress was fatiguing.

"I wonder who's ahead of us," said Bob; "it can't be girls, or we'd have overtaken them."

"Oh, it may be—perhaps they're well mounted," replied Tom, reassuringly; and the prospect of meeting with some pretty faces at the top helped these young gentlemen to increase their speed.

They were riding along together, when a turn in the path suddenly brought them into the presence of a lady, who sat as in an arm-chair between the washed-out roots of a large tree. She was smiling, as if in a dream of bliss, and she was, indeed, fast asleep. She was dressed in a suit of gray woolen, with little bows of scarlet upon it, and bunches of scarlet geraniums were festooned around her bonnet. But she was not a young lady, though a pretty one, and there were a good many silver threads among the golden ones which were curled over her forehead. Tom was the first to recognize her; it was an old friend of his and his family.



Polly Braithwaite's Mamma.

"Why, it's Mrs. Braithwaite!" He uttered the name loud enough to awake her, and when she opened her eyes she gave a little scream of alarm as she saw the three roughly dressed and brown young men standing looking at her. They simultaneously raised their hats to her, and their bows and smiling faces were evidence that, if they were banditti, as she feared, they were not bent on violence. A moment later she recognized Tom.

"Well, Thomas Smart!" she ejaculated between her gasps of astonishment. "Who would have thought of finding you here?"

"It ought to be less surprising for you to find me here than for me to find you, Mrs. Braithwaite."

"Well, it's Polly's fault; she would come up the mountain, and she scolded me into coming with her. She said it was just as bad to go to Rome without visiting St. Peter's as to visit Colorado without coming to the top of this awful mountain. The top! Is it far? As soon as I got here and saw this delightful old tree, I said I would not go another step. They've gone the rest of the way themselves."

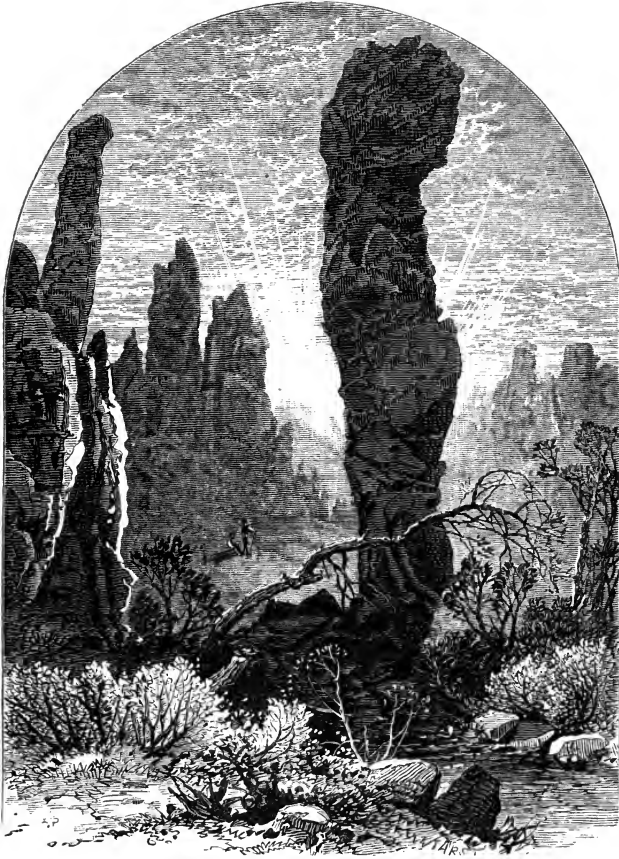
"Who have gone?"

"Why, Polly and the earl, and the Rev. Mr. Hawtry and Miss Aldrich."

"The earl?"

"Yes; one of the nicest men, though he is English—the Earl of Everton, you know. We met him at Idaho Springs, where we've been camping out. He was introduced to us by some friends of ours, and asked if he might accompany us up this wretched peak. I didn't see any objection, and so he

came. He brought Mr. Hawtry with him—a clergyman and an excellent person, who is given to hunting—too much so, I fear.”



Major Domo, Glen Eyrie, Colorado.

Mrs. Braithwaite was the wife of a Chicago friend of Tom's father, and Miss Polly was her daughter, a dashing and adventurous young lady, of whom he retained many tender recollections. The apex of Pike's Peak became a more desir-

able goal to Tom after he learned that she was on it. He urged Mrs. Braithwaite to complete the ascent with him and his friends, whom he introduced to her, but she declared that she would resume her nap, and postpone a visit to the summit until it could be reached by rail.

As the boys hastened farther up the mountain, Peter said, "Think of meeting a real live earl!"

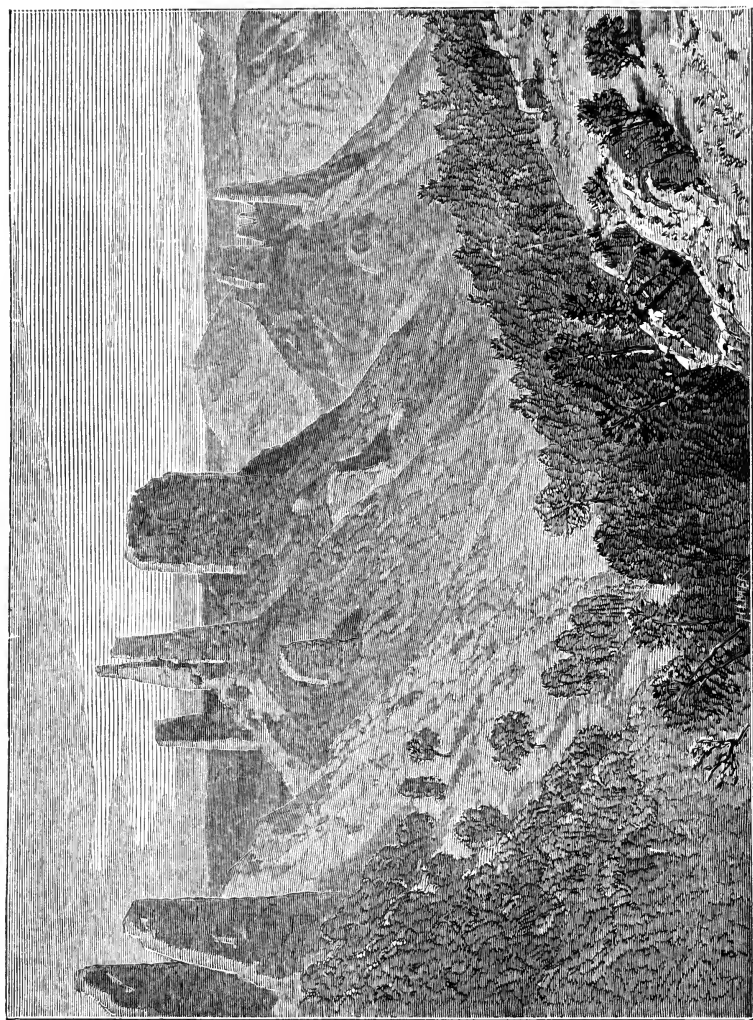
"Don't let it make you giddy," observed Bob, caustically, "or you may tumble off the mountain."

Tom had been thinking, not of the earl, but of Miss Polly.

"It struck me," he said, "that Mrs. Braithwaite's description of his companion would answer very well for the army chaplain we met on the way from Omaha."

"So it did!" exclaimed the two others.

In a few minutes they were enabled to verify the accuracy of this idea. They saw ahead of them two young ladies, one of whom was an exact duplicate of Mrs. Braithwaite, except that she looked, perhaps, thirty years younger. She was dressed in the same fashion as her mother—in gray, with flame-like tips and bows of satin ribbon. The other was also pretty: it was Miss Braithwaite's dearest friend. The backs only of the two gentlemen were visible, but their conversation revealed them as being the Englishmen who had been on the train between Omaha and Cheyenne. That one who had been so surprised that Tom could discover his nationality, from an accent as broad as the ocean, was indeed the Earl of Everton. He was talking very earnestly to Miss Polly; while the chaplain, wearing a blue pea-jacket and a miner's slouch



Pleasant Park, near Monument Park, Colorado.

hat, was describing to Miss Aldrich an adventure which he had had in the Himalayas.

There never was a pleasanter reunion on the top of Pike's Peak than this one proved to be. Miss Polly was unfeign-

edly glad to see Tom; and Miss Aldrich also welcomed the young gentlemen with great affability. She was a girl of literary tastes, and soon found Peter's companionship more congenial than that of the others. She had been reading some very picturesque letters from Colorado in the "New York —," by-the-way. Had he seen them, and did he know who was the writer? Peter blushed before he could admit that he was the author.

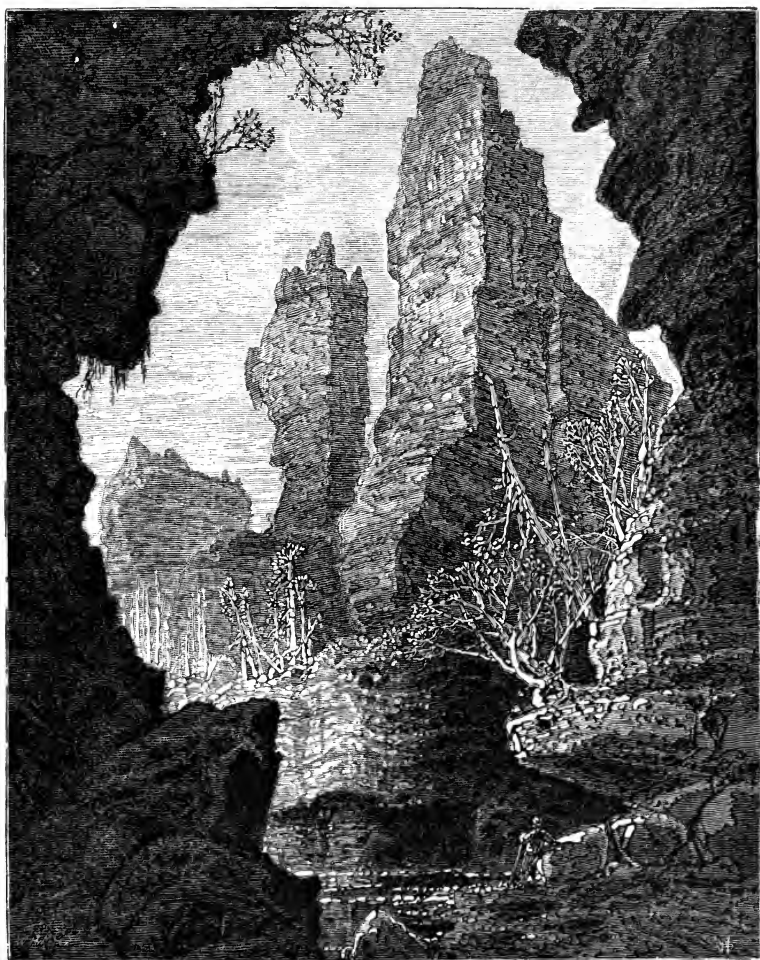
The Englishmen were very cordial in their recognition of the boys. They had been having a grand time, the earl said. He had purchased one of the largest parks in Colorado, which he proposed to keep as a game-preserve. The parson glowed as he told of the sport he had met with. He had shot bear, mountain-sheep, panther, and deer, and had captured several specimens alive, which he had shipped to the Zoölogical Gardens of London.

"Dear old Frank will open his eyes at the panther I have —ah—sent him. You know Frank Buckland, don't you—the naturalist? He was the surgeon of our regiment, and I've sent him a mountain-lion that measures twelve feet, by Jove!"

When the party rejoined Mrs. Braithwaite, she invited Tom, Bob, and Peter to unite with her forces for a week, during which they would visit Monument Park, the Garden of the Gods, Glen Eyrie, and Williams Cañon. The invitation, we need not say, was instantly accepted.

What a famous week it was! What delicacies were added to the mess, and how savage the life which the boys had been leading seemed in contrast with that to which they were now introduced! Greene obtained an advance of money

from Tom, and appeared in an entirely new suit of clothes. Miss Polly taught him how to make toast over the camp-fire



Williams Cañon, Colorado.

—not charred bread with the flavor of cinders, but crisp, delicately browned toast. Miss Polly became the chief of the

expedition, and an indefatigable officer she was—the martinet of the camp. Dave could only be seen now and then; he was shy of company; but, when he was visible, it was in a white shirt with a crimson and yellow kerchief around his neck.

They picnicked among the eroded sandstones of Monument Park and Pleasant Park, where the rocks are like goblins, and in Williams Cañon, where the rocks have been hollowed out and broken into the vivid resemblances of old castles. They spent a day in the Garden of the Gods, and pitched their tents under that enormous rock which towers up at the entrance. Then they visited Glen Eyrie, and saw rocks which might from a distance have been mistaken for a church-organ; and the Major Domo, another rock, which rises to a height of one hundred and twenty feet, though at its base it is not more than ten feet in diameter.

Peter alone seemed discontented. When at the end of the week it was time for the party to separate, he was the only one who did not regret it.

“I shall be glad to get back to our old way of life,” he said; and he afterward wrote to his paper, contrasting a picnic in the mountains with the Spartan mode of travel to which he had grown used.

“We don’t despise spring-beds nor easy-chairs,” he wrote, “but all these things limit the movements of the party, and that complete change of life which is supposed to be the peculiar advantage of camping out becomes impossible. A camp may be established among the woods, and the balsam of the pines may be breathed to the full. What sort of a camp is it, however, where all the members sit down on

stools to a covered table, and eat a dinner of pretentious canned stuffs? It is a garden-party, no more nor less! perhaps beneficial—no doubt very enjoyable; but it is expensive, yet circumscribed, and it is not the real thing; it is a fastidious imitation, and, except that the roof is canvas instead of shingles, there are many taverns among the foot-hills where the same advantages could be had at a much smaller outlay.”

It may have been that Peter's dissatisfaction arose from the presence of a young gentleman who joined the party at Manitou, and who turned out to be Miss Aldrich's sweetheart.



Miss Polly Braithwaite.

CHAPTER XI.

ON BOARD THE PACIFIC EXPRESS.

TAKING leave of Mrs. Braithwaite and her party, who were going to spend some time at Idaho Springs, Tom and his companions now proceeded to Denver, where they disbanded. They sold their mules for nearly fifty dollars more than they had paid for them, and their camp outfit also brought a fair price, as they found purchasers for it in a party of mining prospectors. On the whole, their journey had been less expensive than it would have been if they had traveled by the beaten path.

Both Dave and Greene were sorry to part with them, but Tom assured them that, when he established his ranch, they would be the first he should apply to if he wanted help. Dave was so touched that he blessed the boys at least a score of times, and, in his own language, irrigated their departure with a tear. He gave Tom an old daguerreotype of himself. It represented a long-haired, theatrical-looking trapper.

"That thar was me," he said, "thirty years ago. Purty nice-looking young cuss, eh? We all wore our hair long then, just because we didn't think of it. But now—why, nobody

'u'd think of dressing like that unless he was one of them thar play-actors with a lot o' bogus Injuns. That mare in the photogram was a pet o' mine. I never keered for anybody, except my old mother, as much as I keered for that mare. What became of her? Why, the Comanches got away with her, and nearly got away with me too, 'way back in '66."

When the boys took their seats in the train for Cheyenne, they were changed from what they had been on arriving in Denver from the East. They were straighter, firmer, more definite, and in every way manlier. If I call them boys hereafter, it will simply be from oversight, or because I am so much older than they were, that, relatively speaking, they were boys. Speaking not relatively, but absolutely, their contact with nature had made men of them. They felt a self-reliance, a freedom of movement, and an expansion of mind, which lifted them into manhood, though Bob's face had grown so brown that his attempt at a mustache was no longer distinguishable from his complexion.

When, after the ride along the eastern slope of the mountains, they changed cars at Cheyenne and got on board the Pacific express, in which they intended to cross the continent to the Sierra Nevada, they were not what they had been a few months before—greenhorns, listening with silent wonder to travelers' tales, and accepting as truth all they heard; but they had acquired an experience which qualified them for joining intelligently in the conversation of their fellow-passengers, and discussing the subjects in which they were interested with the stock-raisers, the miners, the army officers, and the lumbermen, who were on the train which makes the long

journey from the Atlantic to the Pacific, and which usually includes at least one of each of these in its mixed and entertaining company.

They secured a drawing-room, and abundantly provided themselves with magazines and books. They had Mr. Clarence King's brilliant "Mountaineering in the Sierra Nevada"; Mr. Nordhoff's useful "California"; Bret Harte's captivating stories; Fitz-Hugh Ludlow's "Heart of the Continent" (a model narrative of travel); Mr. De Forest's thrilling romance called "Overland"; Theodore Winthrop's "John Brent" (another work of fiction giving vivid pictures of life on the plains and in the mountains); Colonel Dodge's "The Plains and their Inhabitants"; "The Santa Fé Trail," by Mr. A. A. Hayes, Jr.; and the "Birds of the Northwest," by Dr. Elliott Coues.

Thus provided for, in the luxurious privacy of a Pullman drawing-room, they made the wonderful journey across the interior of the continent like princes—a journey, the scenery of which embraces examples of nearly all the strange features of nature in the whole Western country. Stretched at ease in their arm-chairs, they looked out on the marvelous panorama of fantastic sandstones, white peaks, blue cañons, alkali deserts, and cattle lands, which rapidly passed before them.

There are spaces in which the scenery of the Pacific Railway is not interesting, but they are few, and the journey affords a never-to-be-forgotten illustration of the great forces that have built this continent.

Even the desolate plains are the burying-grounds of un-

recorded ages, and all over them are found fossils, shells, and petrifications.

During the building of the railway an attempt was made to obtain water for the engines by sinking a well at Julesburg. When the shaft had been sunk to a great depth the workmen came upon an immense deposit of bones in every state of preservation and decay.

Some time afterward, the late Professor Agassiz happened to visit the neighboring Fort Sanders, and it is said that he converted the whole garrison into naturalists, and that everything rare and curious was brought to him for examination and explanation. One of the officers showed him a bone from the Julesburg well.

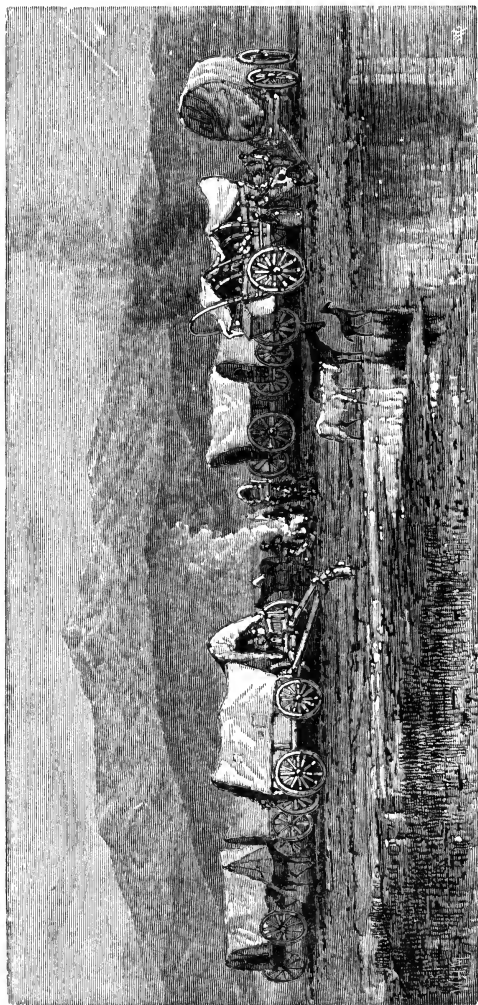
"It is," said the professor, "the bone of an antelope."

"But how," exclaimed his listeners, "could the bone of an antelope get three hundred feet under ground?"

"That I do not know, but I do know that this is the leg-bone of an antelope."

The snow-fences and snow-sheds, a few of which were passed east of Cheyenne, become more frequent west of that point, and the preparations made for protection indicate how terrible the winter storms are. A plaintive look of apprehension may be seen on the faces of the emigrants in the forward cars, and an occasional mutter of disappointment is heard. A stock-raiser points out an ominous little valley in which several thousand sheep were frozen to death in one night, and a scattering of bleached bones confirms his story. Here the train crosses a shallow cañon, and the track is hedged on both sides by a fence. The wind blows with

such fury in winter that it lifts the snow up out of this ravine and over the bridge on which the railway is carried.



Emigrants' Camp, Laramie Plains.

Bleak and profitless hills of loose sand, strewed with boulders and ribbed with buttresses of weathered granite, limit the prospect; and the high peaks of Colorado, which were visible from Cheyenne, are hidden by the intermediate ridges. But in the neighborhood of Sherman, thirty-three miles from Cheyenne, these superb mountains reappear, stretching a hundred miles or more to the southward, bathed in white vapor near the summits, profoundly blue as they slope down to the foot-hills, checkered with broad streaks of light, dazzling snow-fields, and

voluminous shadows. Then the train rolls down into the great Laramie Plains, which are overrun by enormous flocks

of sheep and herds of cattle, and which are said to afford the best grazing in the United States.

The emigrant-road follows the line closely, and canvas-covered wagons drawn by ox-teams are often passed, sometimes alone and sometimes in trains of five or more. The whole establishment of a migrating family—women, children, furniture, cattle, and pets—is included in the caravan; and in the evening it is a common thing to see the wanderers drawn up by the side of a brook or spring for the night, the women busying over the camp-fire, and the men attending to the cattle, or smoking under the shelter of their wagons.

The Indian wigwam, that in the early days of the railway might have been discovered in the rear of the newly settled town, has nearly wholly disappeared, and the Indian himself, even the degenerate Digger who was content to beg for coppers at the station, is becoming obsolete.

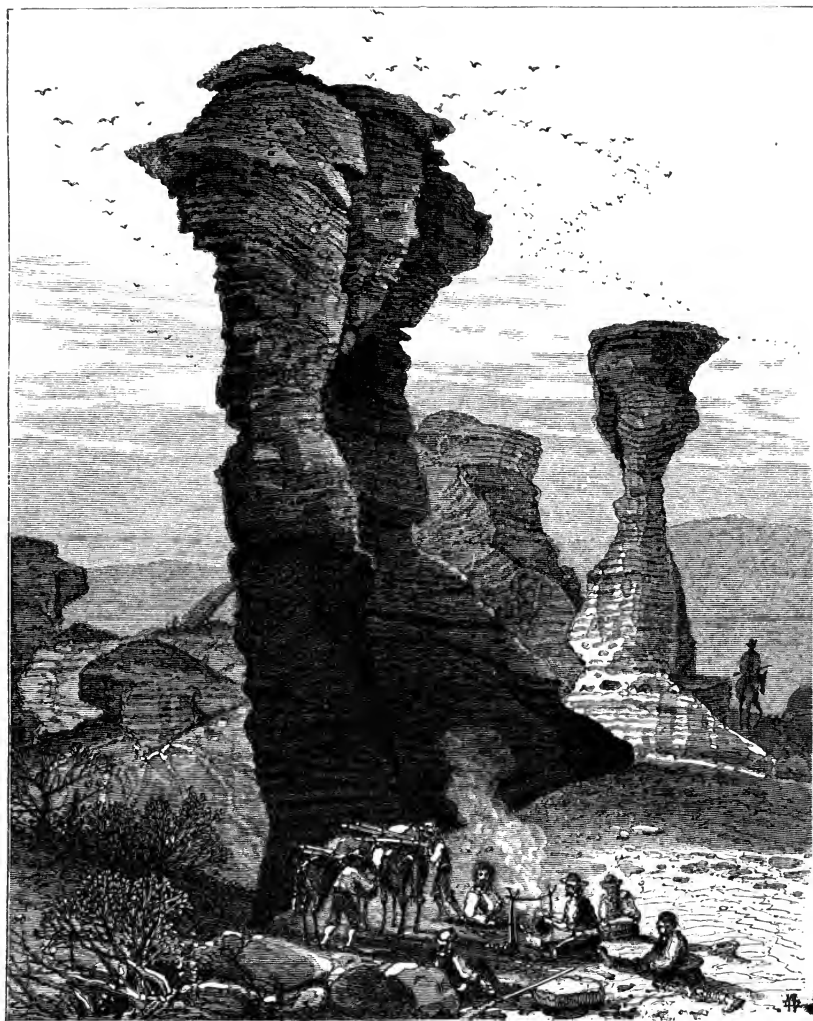
Soon after passing the little city of Laramie, in which over five hundred buildings were put up in one week, the night sweeps up from the east in a smoky-looking cloud, and overtakes the speeding train. But, before the relapse of light into final darkness, there is the momentary glory of the western sunset, with its barbaric splendors of crimson and gold, and its dying pathos of opaline light and peaceful blues and grays. No ugliness can assert itself in this parting look of the day. The mean little dug-out and the *bizarre* hovel of the mines are redeemed from their squalor and unshapeliness, and changed until they become inoffensive to the sight. The low-lying plain and the swampy stream meandering it borrow color from the expiring light; the plain is a red-brown, and

the river is overcast with a skim of brassy yellow. The distant mountains are folded in a wonderful blue or purple—which it is we can scarcely tell—and every bend and peak in their serrated summit-line is emphasized with startling distinctness.

The clattering train does not break the spell of silence and loneliness that settles with twilight on the land, despite its suggestiveness of civilization and the fast-beating pulse of commerce; on the contrary, it adds weirdness to the scene as it twists among the hillocks, disappearing under a snowshed for a minute, and reappearing with a roar and a blaze. It is like a ship adrift at sea; whence it has come is only indicated by the clogging wreath of smoke that hangs low upon the earth behind it, and its destination is unforeshadowed by the gleam of a human habitation in the dusk ahead. At this time the achievement of the railway company in projecting an iron pathway into so wild and desolate a region impresses us as it has not impressed us before.

We pass from stretch to stretch of plain, bounded by the same whited peaks, and not different in any important particular from the stretch before it. The telegraph-poles are the only projections nearer than the mountains, and a flock of birds, or sheep, or a herd of cattle in the neighborhood of a roughly timbered ranch, is all that can be seen of life.

Near a station called Percy a race once took place between a locomotive and a herd of red deer. The locomotive had entered a narrow valley, and the engineer discovered the herd drinking on the banks of a rivulet. Startled by the sudden apparition of the thunderous engine, the timid creat-

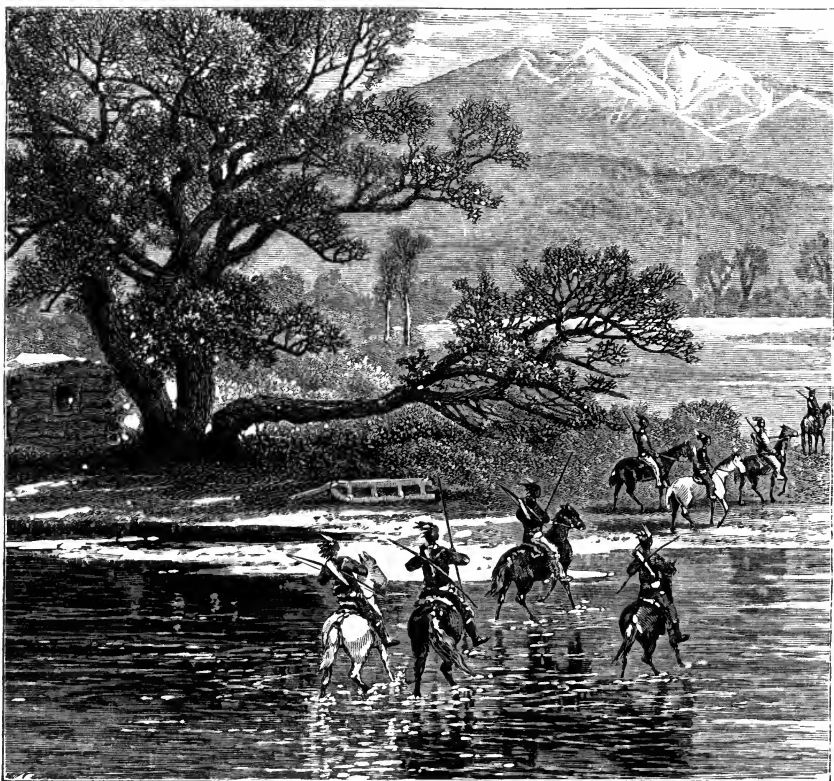


Red Buttes, Laramie Plains.

ures fled before it with extraordinary fleetness ; the engineer increased his speed and blew his whistle ; but the deer kept ahead until they reached more open country, when they sprang

to one side and ran to a distance beyond the range of a rifle, where they stood and gazed with dilated eyes at their fast-disappearing enemy.

Just before midnight, when all the couches have been trans-



Banks of the Platte, near Fort Fred Steele.

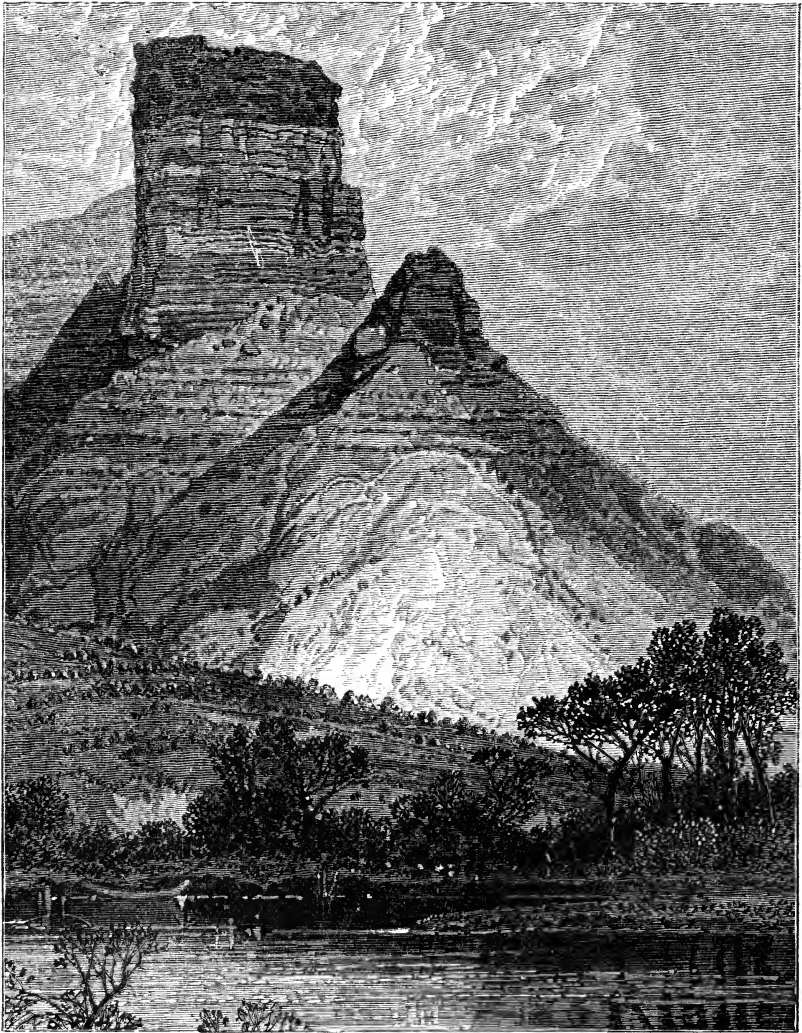
formed into snug sleeping-berths, and the little smoking-room in the rear has been left by the last lingering smoker, the westward-bound train halts again—this time at Fort Fred Steele, and, if the night is clear, any one peeping through

the curtains of his bed will see a broad river flowing on near the railway. It is the same river, the North Platte, which was seen six hundred miles nearer Omaha, where it was muddy, shallow, and sluggish, while here it is clear and deep, and as unsullied as it is at its source among the perpetual snows of Long's Peak in the North Park of Colorado.

The fort is a fort in name only, and is simply a shelter for troops and a store for supplies, and in contrast with its primitive log-walls is the orderly arrangement of the interior. Not an observance exacted in the most populous and magnificent fort in the East or in Europe is omitted from the discipline of this isolated outpost; the *reveille* is beaten and the guard mounted at the same hour and with the same unerring punctuality as at Governor's Island and San Francisco, and both officers and men are as careful and as neat in their dress as a regiment marshaled for review before the commander-in-chief.

During the night the train passes settlement after settlement which might be wiped out without detriment to the country: the earliest sign of life in them is the bar-room; the success of the first establishment of this kind entails several others, and, if civilization survives these developments, a few cottages and a church follow. Half the towns have no better excuse for existence than the gratification of the bad tastes of the ranchmen and miners, who flock in for occasional debauchery. But Rome began with Remus and Romulus; and as great a civilization, with greater endurance, may have its seed in a vagabond of the plains.

On the following morning Tom and his companions found



Giant's Butte, Green River.

themselves whirling through sandy, yellowish gullies, and having completed their toilets amid the flying dust, they emerged, at about eight o'clock, in a basin of gigantic and abnormal

rock forms, upon which, as if painted by human hands, were bands of dull gold, pink, orange, and vermilion. In some instances the massive sandstones seemed to have been designed and scaled on an architect's draughting-board, but they were the work of Nature; the hewing, the carving, and the polishing had all been done by her.

A little town is built in the midst of them, and this is pompously called Green River City. The river winds by it, and owes its name to the color of the shales through which it runs. At Flaming Gorge the water is of the purest emerald, with banks and sand-bars of glistening white, and it is overlooked by a perpendicular bluff, banded with the brightest red and yellow to a height of fifteen hundred feet above the surrounding level. When it is illumined by the full sunlight, Flaming Gorge fully realizes its name; and it is the entrance to the miraculous Red Cañon, which furrows the mountains to a surpassing depth.

Beautiful impressions of fish are seen on the shales, sometimes a dozen or more within the compass of a square foot. The molds of insects and water-plants are also found, and occasionally a greater wonder still, such as the feather of a bird, can be traced in the heart of a rock several hundred feet high.

There are many wonderful rocks in the neighborhood. One is called the Giant's Club—a towering mass, almost round, which rises to a great height, and which was at one time, according to the geologists, at the bottom of a lake.

But, perhaps, the chief interest of Green River City is that it was the scene of Major Powell's departure on his fa-

mous expedition through the cañons of the Colorado River, which is formed by the junction of the Grand and the Green.

That expedition was one of the most noteworthy of all Western explorations, and, as many facts concerning it were imparted to Tom by Major Powell when he afterward met that explorer in Washington, I give a separate chapter to it.



Cliffs of the Colorado.

CHAPTER XII.

THROUGH THE DEEPEST CAÑON.



IN all the world there is no other river like the Colorado. The phenomenal in form predominates: the water has grooved a channel for itself over a mile below the surrounding country, which is a desert uninhabited and uninhabitable, terraced with long series of cliffs or *mesa*-fronts, verdureless, voiceless, and unbeautiful.

Perhaps no portion of the earth's surface is more irremediably sterile, none more hopelessly lost to human occupation, and yet, an eminent geologist has said, it is the wreck of a region once rich and beautiful, changed and impoverished by the deepening of its draining streams—the most striking and suggestive example of over-drainage of which we have any knowledge. Though valueless to the agriculturist, dreaded and shunned by the emigrant, the miner, and the trapper, the Colorado plateau is a paradise to the geologist, for nowhere else are the secrets of the earth's structure so fully revealed as here. Winding through it is the profound chasm within which the river flows

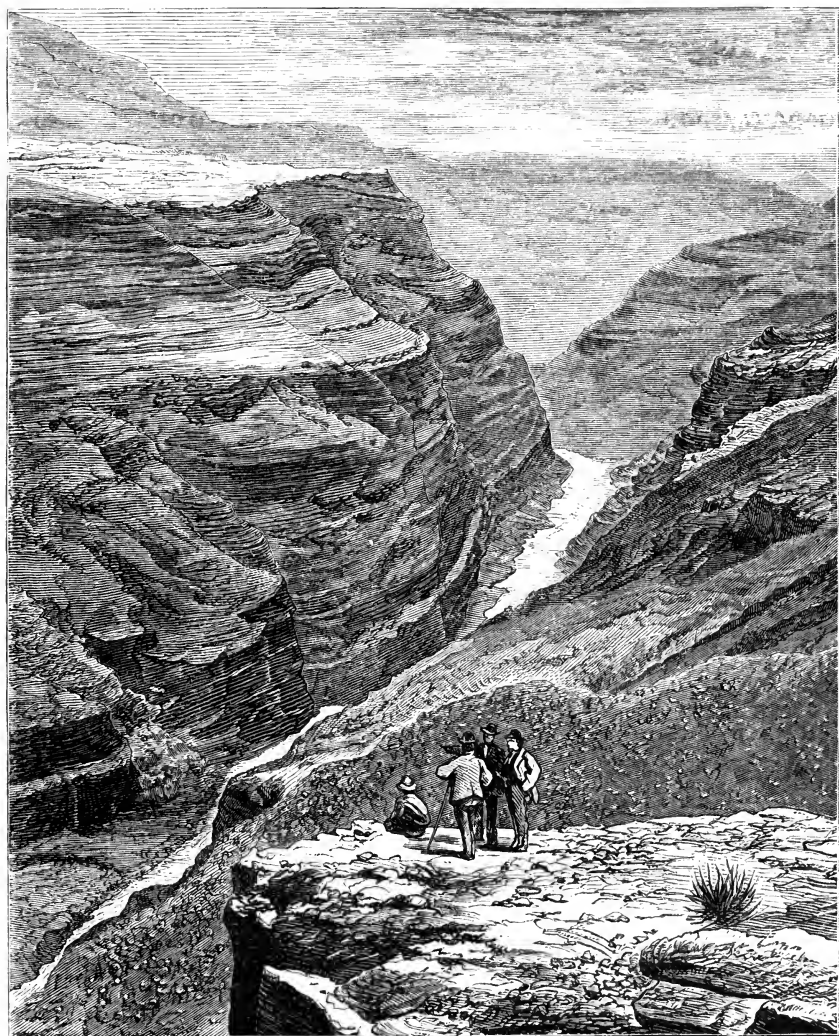
from three thousand to six thousand feet below the general level for five hundred miles in unimaginable solitude and gloom, and the perpendicular crags and precipices which imprison the stream exhibit with unusual clearness the zoölogical and physical history of the land.

“Everywhere there are side gulches and cañons forming thousands of gloomy alcoves,” Major Powell, the explorer, has written. “One might imagine that this was intended for the library of the gods. The shelves are not for books, but form the stony leaves of one great book. He who would read the language of the universe may dig out letters here and there, and with them spell the words, and read, in a slow and imperfect way, but still so as to understand a little, the story of creation.”

The mountains have not shaped the course of the river, but the river has cut its way through the mountain: it was running before the mountains were formed; not before the constituent rocks of the mountains were deposited, but before those rocks were folded into a range. The clouds, too, have played a part in shaping the country of the Colorado. They have gathered about the granite and marble lifted into their region, and hurled their storms against them, breaking the rocks into sands, and carving out of them cañons, gulches, and valleys.

The river has been the greater power, however, and at one point it has cut the shape of a horseshoe to a depth of several thousand feet in the solid rock. The climate is exceedingly arid, and the scant vegetation furnishes no protective covering against the beating storms. But though lit-

the rain falls, that which does is employed in erosion to an extent difficult to appreciate by one who has only studied the action of water in degrading the land¹ in a region whose



A Glimpse of the Grand Cañon.

grasses, shrubs, and trees bear the brunt of the storm. A little shower falls, and the water gathers rapidly into streams, and plunges headlong down the steep slopes, bearing with it loads of sand, and, for a few minutes or a few hours, the land is traversed by countless brooks and creeks of muddy water. A clear stream is never seen except on some high mountain, and no stream is permanent unless its source is in such a mountain.

All the mountain forms of this region are due to erosion; all the cañons, channels of living rivers, and intermittent streams were carved by the running waters. But the carving of the cañons and mountains is insignificant when compared with the denudation of the whole area, as evidenced in the cliffs of erosion. Beds hundreds of feet in thickness and hundreds of thousands of square miles in extent, beds of granite and beds of schist, beds of marble and beds of sandstone, crumbling shales and adamantine lavas, have slowly yielded to the silent and unseen powers of the air, and crumbled into dust and been washed away by the rains and carried into the sea by the rivers.

Lieutenant Ives, who explored the lower Colorado, made a land-trip, from a point below the Grand Cañon around to the southwest, and climbed the San Francisco Plateau, and from an elevated point he could look off to the northeast and see the region of which we are now speaking.

Of this country he says: "The extent and magnitude of the system of cañons in that direction are astounding. The plateau is cut into shreds by these gigantic chasms, and resembles a vast ruin. Belts of country, miles in width, have

been swept away, leaving only isolated mountains standing in the gap; fissures, so profound that the eye can not penetrate their depths, are separated by walls whose thickness one can almost span; and slender spires, that seem tottering upon their base, shoot up a thousand feet from vaults below."

In other regions, the rocks, when not covered with soil, or more vigorous vegetation, are at least lichened, or stained, and are themselves of somber hue; but here they are naked, and many of them brightly colored.

That the cañons are the result of erosion is fairly beyond question. The eminent geologist, Professor Newberry, examined them with the closest scientific care, and has stated that he found everywhere evidences of the exclusive action of water in their formation. Major Powell has explored thousands of miles of them, and has brought the exact observations of a life-long training to bear in investigating them, and he, also, attributes them to the rivers which flow through them.

Major Powell started on May 28, 1869, accompanied by nine men, who had been carefully selected for their reputed courage and power of endurance. The boats in which they traveled were four in number, and were built upon a model which, as far as possible, combined strength to resist the rocks with lightness for portages and protection against the overwash of the waves. They were divided into three compartments, oak being the material used in three and pine in the fourth. Sufficient food was taken to last ten months, with plenty of ammunition and tools for building cabins and repairing the boats, besides various scientific instruments.

Thus equipped and in single file, the expedition left Green



The Start from Green River City.

River City behind and pulled into the shadows of the phenomenal rocks. During the first few days they had no serious mishap: they lost an oar, broke a barometer-tube, and occasionally struck a bar. All around them abounded examples of that natural architecture which is seen from the passing

train at the "City"—weird statuary, caverns, pinnacles, and cliffs, dyed gray and buff, red and brown, blue and black, in horizontal strata.

At the end of sixty-two miles they reached the mouth of Flaming Gorge, which, in 1869, was the gate-way to a region which was almost wholly unknown.

An old Indian endeavored to deter Major Powell from his purpose. He held his hands above his head, with his arms vertical, and, looking between them to the sky, said:

"Rocks h-e-a-p, h-e-a-p high; the water go h-oo-woogh; water-pony (boat) heap buck. Water catch 'em, no see 'em squaw any more, no see 'em Injin any more, no see 'em papoose any more."

The prophecy was not encouraging, and with some anxiety the explorers left the last vestige of civilization behind them.

Below the gorge they ran through Horseshoe Cañon, which describes an elongated letter U in the mountains, and several portages became necessary. The cliffs increased a thousand feet in height, and in many places the water completely filled the channel between them; but occasionally the cañon opened into a little park, from the grassy carpet of which sprang crimson flowers on the stems of pear-shaped cactus-plants, patches of blue and yellow blossoms, and a fragrant *Spiræa*.

As often as a rapid was approached, Major Powell stood on the deck of the leading boat to examine it, and if he could see a clear passage between the rocks he gave orders to go ahead; but if the channel was barricaded he signaled the other boats to pull ashore, and, landing himself, he walked along the edge of

the cañon for further examination. If still no channel could be found, the boats were lowered to the head of the falls and let down by ropes secured to the stem and stern ; or, when this was



Horse-Shoe Cañon.

impracticable, both the cargoes and the boats were carried by the men beyond the point of difficulty.

When it was decided to run the rapids, the greatest danger was encountered in the first wave at the foot of the falls, which gathered higher and higher until it broke. If the boat struck it the instant after it broke, she cut through it, and the men had all they could do to keep themselves from being washed overboard. If, in going over the falls, she was caught by some side-current and borne against the wave "broadside on," she was capsized, an accident that happened more than once, without fatal results, however, as the compartments served as buoys, and the men clung to her and were dragged through the waves until quieter water was reached. Where these rapids occur the channel is usually narrowed by rocks which have tumbled from the cliffs or have been washed in by lateral streams; but immediately above them a bay of smooth water may usually be discovered, where a landing can be made with ease.

In such a bay Major Powell landed one day, and having signaled for the others to follow him, he walked along the cañon wall to look for the fall of which a loud roar gave some warning.

But one of the boats, manned by two brothers named Howland, and another assistant named Goodman, was caught in a treacherous eddy, and in a moment she disappeared.

The first fall was not great—not more than ten or twelve feet—but below it the river swept down forty or fifty feet through a channel filled with spiked rocks, which broke it into whirlpools and frothy crests.

Major Powell scrambled round a crag just in time to see the

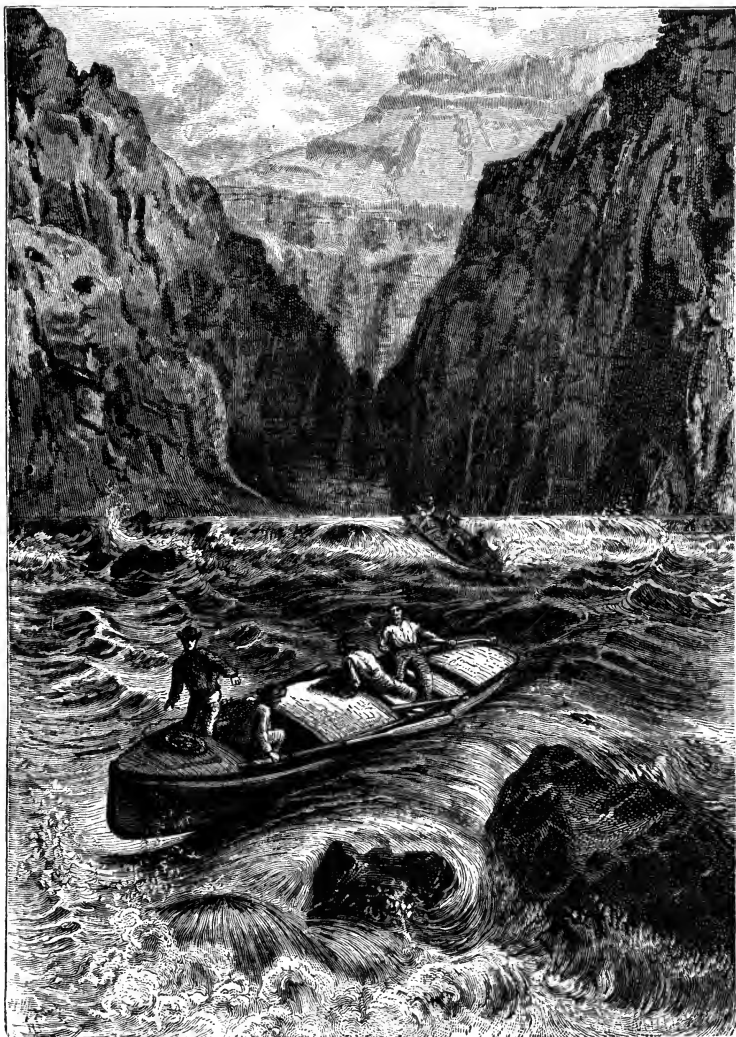
hapless little craft strike one of these rocks, and, rebounding from the shock, careen and fill the open compartment with water. The oars were dashed out of the hands of two of the crew as she swung around, and was carried down the stream with great velocity, and immediately after she struck another rock amidships, which broke her in two and threw the men into the water.

The larger part of the wreck floated buoyantly, and seizing it, the men supported themselves by it until a few hundred feet farther down they came to a second fall, filled with huge boulders, upon which the wreck was dashed to pieces, and the men and the fragments were again carried out of Major Powell's sight.

He struggled along the scant foot-hold afforded by the cañon-wall, and, coming suddenly to a bend, saw one of the men in a whirlpool below a large rock, to which he was clinging with all possible tenacity. It was Goodman, and a little farther on was Howland, tossed upon a small island, with his brother stranded upon a rock some distance below.

Howland struck out for Goodman with a pole, by means of which he relieved him from his precarious position, and very soon the wrecked crew stood together, bruised, shaken, and scared, but not disabled. A swift, dangerous river was on each side of them and a fall below them. It was now a problem how to release them from this imprisonment.

Sumner, another of the men, volunteered, and in one of the other boats started out from above the island, and with skillful paddling landed upon it. Together with the three shipwrecked men he then pushed up-stream until all stood

*Running a Rapid.*

up to their necks in water, when one of them braced himself against a rock and held the boat, while the three others jumped into her; the man on the rock followed, and all four

then pulled vigorously for the shore, which they reached in safety.

Many years before an adventurous trapper and his party had been wrecked here, and several lives had been lost. Major Powell named the spot Disaster Falls.

The cliffs are so high that the twilight is perpetual, and the sky seems like a flat roof pressed across them. As the worn men stretched themselves out in their blankets, they saw a bright star that appeared to rest on the very verge of the eastern cliff, and then to float from its resting-place on the rock over the cañon. At first it was like a jewel set on the brink of the cliff, and as it moved out from the rock they wondered that it did not fall. It did seem to descend in a gentle curve, and the other stars were apparently in the cañon, as if the sky was spread over the gulf, resting on either wall, and swayed down by its own weight.

Sixteen days after leaving Green River City the explorers reached the end of the Cañon of Lodore, which is nearly twenty-four miles long. The walls were never less than two thousand feet high except near the foot, and the men often seemed to be at the bottom of a mine. They are very irregular, standing in perpendicular or overhanging cliffs here, terraced there, or receding in steep slopes broken by many side-gulches. The highest point of the wall is twenty-seven hundred feet, but the peaks a little distance off are a thousand feet higher. Yellow-pines, nut-pines, firs, and cedars stand in dense forests in the Uintah Mountains, and clinging to moving rocks they have come down the walls to the water's edge between Flaming Gorge and Echo Park. The red

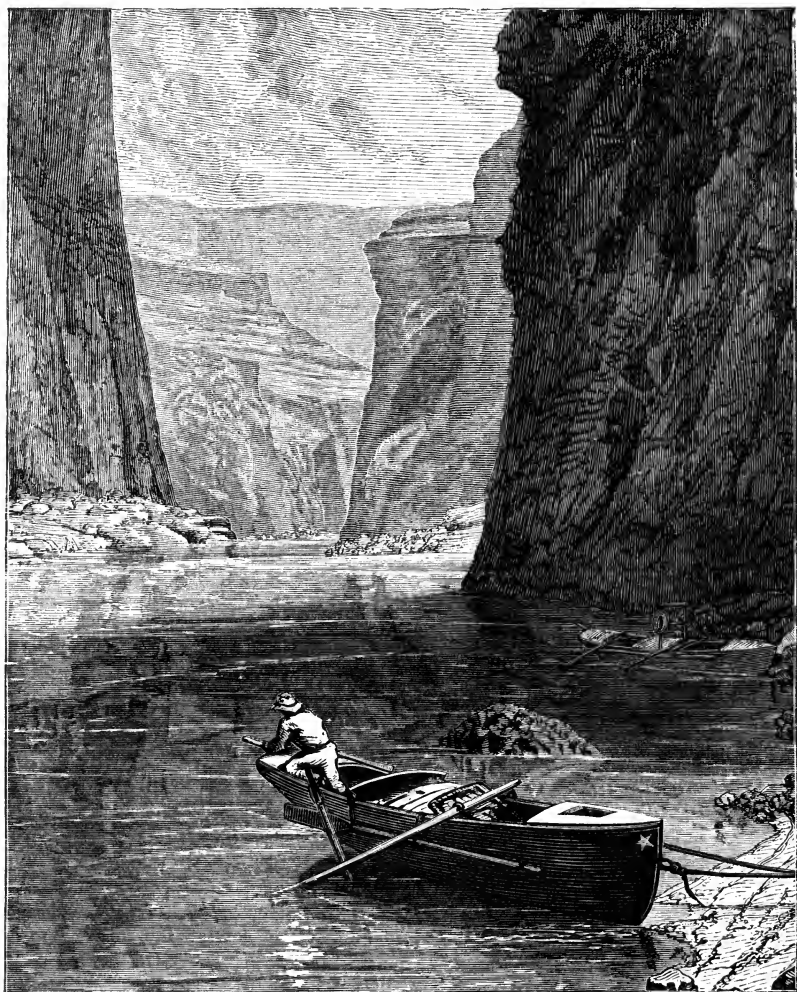
sandstones are lichened over, delicate mosses grow in the moist places, and ferns festoon the walls.

A few days later they were upset again, losing oars, guns, and barometers, and on July 18th they had only enough provisions left for two months, though they had supplied themselves with quantities which, barring accidents, should have lasted ten months.

On July 19th the Grand Cañon of the Colorado became visible, and from an eminence they could follow its course for miles and catch glimpses of the river. The Green, down which they had come so far, bears in from the northwest through a narrow, winding gorge. The Grand comes in from the northeast through a channel which from the explorer's point of view seemed bottomless. Away to the west are lines of cliffs and ledges of rock, with grotesque forms intervening. In the east a chain of eruptive mountains is visible, the slopes covered with pines, the summits coated with snow, and the gulches flanked by great crags.

Wherever the men looked there were rocks, deep gorges in which the rivers were lost under cliffs, towers and pinnacles, thousands of strangely carved forms, and mountains blending with the clouds.

They passed the junction of the Grand and Green, and on July 21st they were on the Colorado itself. The walls are nearly vertical, and the river is broad and swift, but free from rocks and falls. From the edge of the water to the brink of the cliffs is nearly two thousand feet, and the cliffs are reflected on the quiet surface until it seems to the travelers that there is a vast abyss below them. But the



Marble Cañon, Colorado River.

tranquillity is not lasting: a little way below this space of majestic calm it was necessary to make three portages in succession, the distance being less than three quarters of a mile, with a fall of seventy-five feet.

In the evening Major Powell sat upon a rock by the edge of the river to look at the water and listen to its roar. Heavy shadows settled in the cañon as the sun passed behind the cliffs, and no glint of light remained on the crags above, but the waves were crested with a white that seemed luminous. A great fall broke at the foot of a block of limestone fifty feet high, and rolled back in immense billows. Over the sunken rocks the flood was heaped up into mounds and even cones. The tumult was extraordinary. At a point where the rocks were very near the surface the water was thrown up ten or fifteen feet, and fell back in gentle curves as in a fountain.

On August 3d the party traversed a cañon of diversified features. The walls were still vertical in places, especially near the bends, and the river sweeping round the capes had undermined the cliffs. Sometimes the rocks overarched; again, curious narrow glens were found. The men explored the glens, in one of which they discovered a natural stairway several hundred feet high, leading to a spring which burst out from an overhanging cliff among aspens and willows, while along the edges of the brooklet there were oaks and other rich vegetation. There were also many side-cañons with walls nearer to each other above than below, giving them the character of grottoes; and there were carved walls, arches, alcoves, and monuments, to all of which the collective name of Glen Cañon was given.

One morning the surveyors came to a point where the river filled the entire channel, and the walls were sheer to the water's edge. They saw a fall below, and in order to in-

*Glen Cañon.*

spect it they pulled up against one of the cliffs, in which was a little shelf or crevice a few feet above their heads. One man stood on the deck of the boat, while another climbed over his shoulders into this insecure foot-hold, along which they passed until it became a shelf which was broken by a chasm some yards farther on. They then returned to the boat and pulled across the stream for some logs which had lodged on the opposite shore, and with which it was intended to bridge the gulf. It was no easy work hauling the wood along the fissure, but with care and patience they accom-

plished it, and reached a point in the cliffs from which the falls could be seen. It seemed practicable to lower the boats over the stormy waters by holding them with ropes from the cliffs; and this was done successfully, the incident illustrating

how laborious their progress sometimes became, and the great caution that was necessary.

The scenery was of unending interest. The rocks were of many colors—white, gray, pink, and purple and saffron. At an elbow of the river the water has excavated a semicircular chamber which would hold fifty thousand people, and farther on the cliffs are of softly tinted marble lustrously polished by the waves.

At one place Major Powell walked for more than a mile on a marble pavement fretted with strange devices and embossed with a thousand different patterns. Through a cleft in the wall the sun shone on this floor, which gleamed with iridescent beauty. Exploring the cleft, Major Powell found a succession of pools, one above another, and each cold and clear, though the water of the river was a dull red. Then a bend in the cañon disclosed a massive abutment that seemed to be set with a million brilliant gems as they approached it, and every one wondered. As they came closer to it they saw many springs bursting from the rock high overhead, and the spray in the sunshine forms the gems which glitter in the walls, at the base of which is a profusion of mosses, ferns, and flowers. To the place above, where the three portages were necessary, the name of Cataract Cañon was given; and they were now well into the Grand Cañon itself. The walls were more than a mile in height, and, as Major Powell says, a vertical altitude like this is not easily pictured.

“Stand on the south steps of the Treasury Building in Washington, and look down Pennsylvania Avenue to the

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Capitol Park, and measure this distance overhead, and imagine cliffs to extend to that altitude, and you will understand what I mean," the explorer has written; or "stand at Canal Street, in New York, and look up Broadway to Grace Church, and you have about the distance; or stand at the Lake Street bridge, in Chicago, and look down to the Central Depot, and you have it again."

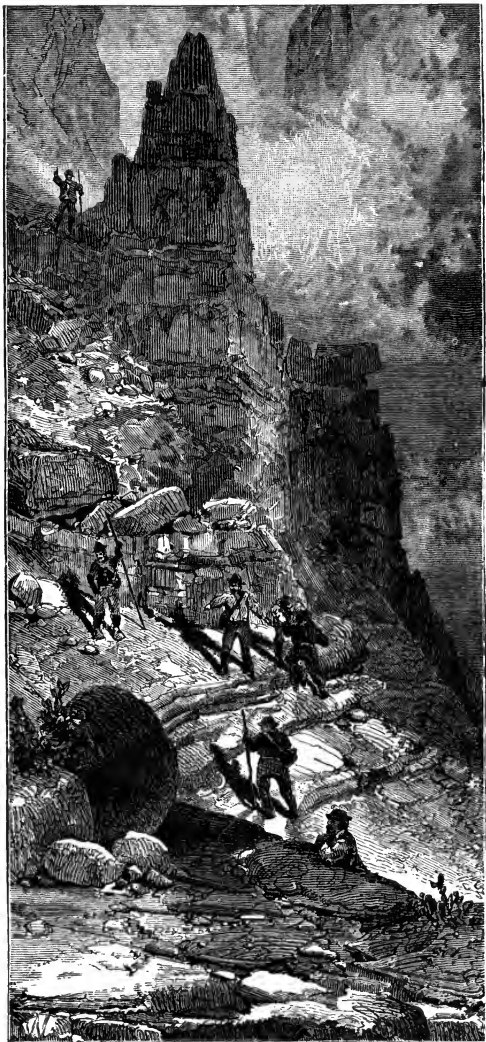
A thousand feet of the distance is through granite crags, above which are slopes and perpendicular cliffs to the summit. The gorge is black and narrow below, red and gray and flaring above.

Down these gloomy depths the expedition constantly glided, ever listening and ever peering ahead, for the cañon is winding, and they could not see more than a few hundred yards in advance. The view changed every minute as some new crag or pinnacle or glen or peak became visible; but the men were fully engaged listening for rapids and looking for rocks. Navigation was exceedingly difficult, and it was often necessary to hold the boats from ledges in the cliffs as the falls were passed. The river was very deep and the cañon very narrow. The waters boiled and rushed in treacherous currents, which sometimes whirled the boats into the stream or hurried them against the walls. The oars were useless, and each crew labored for its own preservation as its frail vessel was spun round like a top, or borne with the speed of a locomotive this way and that.

While they were thus uncontrollable, the boats entered a rapid, and one of them was driven inshore, but, as there was no foot-hold for a portage, the men pushed into the

stream again. The next minute a reflex wave filled the open compartment and water-logged her; breaker after breaker rolled over her, and one capsized her. The men were thrown out, but they managed to cling to her, and as they were swept down the other boats rescued them.

Heavy clouds rolled in the cañon, filling it with gloom. Sometimes they hung above from wall to wall and formed a roof; then a gust of wind from a side-cañon made a rift in them and the blue heavens were revealed, or they dispersed in patches which settled on the crags, while puffs of vapor issued out of the smaller gulches, and occasionally formed bars across the cañon, one above another, each opening a different vista. When the clouds discharged their rains, little rills first trickled down the cliff, and these soon became



Climbing the Grand Cañon.

brooks: the brooks grew into creeks and tumbled down through innumerable cascades, which added their music to the roar of the river. As soon as the rain ceased, rills, brooks, creeks, and cascades disappeared, their birth and death being equally sudden.

Desolate and inaccessible as the cañon is, many ruins of buildings are found perched upon ledges in the stupendous cliffs. In some instances the mouths of caves have been walled in, and the evidences all point to a race for ever dreading and fortifying itself against an invader. Why did these people choose their embattlements so far away from all tillable land and sources of subsistence?

Major Powell suggests this solution of the problem: For a century or two after the settlement of Mexico, many expeditions were sent into the country now comprised in Arizona and New Mexico, for the purpose of bringing the town-building people under the dominion of the Spanish Government. Many of their villages were destroyed, and the inhabitants fled to regions at that time unexplored; and there are traditions among the existing Pueblos that the cañons were these lands. The Spanish conquerors had a monstrous greed for gold and a lust for saving souls.

"Treasure they must have—if not on earth, why, then, in heaven—and when they failed to find heathen temples bedecked with silver, they propitiated Heaven by seizing the heathen themselves. There is yet extant a copy of a record made by a heathen artist to express his conception of the demands of the conquerors. In one part of the picture we have a lake, and near by stands a priest pouring water on the head of a native.

On the other side a poor Indian has a cord around his throat. Lines run from these two groups to a central figure, a man with a beard and full Spanish panoply. The interpretation of the picture-writing is this: 'Be baptized as this saved heathen, or be hanged as this damned heathen.' Doubtless some of the people preferred a third alternative, and rather than be baptized or hanged they chose to be imprisoned within these cañon-walls."

The rains and the accidents in the rapids had seriously reduced the commissary of the expedition by this time, and the provisions left were more or less injured. The bacon was uneatable, and had to be thrown away; the flour was musty, and the saleratus was lost overboard.

On August 17th the party had only enough food remaining for ten days' use, and, though they hoped that the worst places had been passed, the barometers were broken, and they did not know what descent they had yet to make. The canvas which they had brought with them for covering from Green River City was rotten, there was not one blanket apiece for the men, and more than half the party were hatless.

Despite their hopes that the greatest obstacles had been overcome, however, on the morning of August 27th they reached a place which appeared more perilous than any they had so far passed. They landed on one side of the river, and clambered over the granite pinnacles for a mile or two without seeing any way by which they could lower the boats. Then they crossed to the other side and walked along the top of a crag.

In his eagerness to reach a place where he could see the

roaring fall below, Major Powell went too far, and was caught at a point where he could neither advance nor retreat: the river was four hundred feet below, and he was suspended in front of the cliff with one foot on a small projecting rock and one hand fixed in a little crevice. He called for help, and the men passed him a line, but he could not let go of the rock long enough to seize it. While he felt his hold becoming weaker and expected momentarily to drop into the cañon, the men went to the boats and obtained three of the largest oars. The blade of one of them was pushed into the crevice of a rock beyond him in such a manner that it bound him across the body to the wall, and another oar was fixed so that he could stand upon it and walk out of the difficulty. He breathed again, but had felt that cold air which seems to fan one when death is near.

Another hour was spent in examining the river, but a good view of it could not be obtained, and they once more went to the opposite side. After some hard work among the cliffs, they discovered that the lateral streams had washed a large number of bowlders into the river, forming a dam, over which the water made a broken fall of about twenty feet, below which was a rapid beset by huge rocks for two or three hundred yards. This was bordered on one side by a series of sharp projections of the cañon-walls, and beyond it was a second fall, ending in another and no less threatening rapid. At the bottom of the latter an immense slab of granite projected fully half-way across the river, and, upon the inclined plane which it formed, the water rolled with all the momentum gained in the falls and rapids above, and then swept over to the left.

The men viewed the prospect with dismay, but Major Powell had an insatiable desire to complete the exploration. He decided that it was possible to let the boats down over the first fall, then to run near the right cliff to a point just above the second fall, where they could pull into a little chute, and from the foot of that row across the stream to avoid the great rock below.

The men shook their heads, and after supper—a sorry supper of unleavened flour and water, coffee, and rancid bacon, eaten on the rocks—the elder Howland endeavored to dissuade the leader from his purpose, and, failing to do so, told him that he with his brother and Dunn would go no farther. That night Major Powell did not sleep at all, but paced to and fro, now measuring the remaining provisions, then contemplating the rushing falls and rapids. Might not Howland be right? Would it be wise to venture into that maelstrom which was white during the darkest hours of the night? At one time he almost concluded to leave the river, and to strike out across the table-lands for the Mormon settlements.

But this trip had been the object of his life for many years, looked forward to and dreamed of, and to leave the exploration unfinished when he was so near the end, to acknowledge defeat, was more than he could reconcile himself to.

In the morning his brother and his assistants, Sumner, Bradley, Hall, and Hawkins, promised to remain with him, but the Howlands and Dunn were fixed in their determination to go no farther. The provisions were divided, and one of the boats was left with the deserters, who were also provided with three guns. Howland, senior, was also intrusted

with duplicate copies of the records, and with some mementos which the voyagers desired to have sent to friends and relatives should they not be heard of again. It was a solemn parting. The Howlands and Dunn entreated the others not to go on, telling them that it was obvious madness; but the decision had been made, and the two boats pushed out into the stream.

They glided rapidly along the foot of the wall, grazing one large rock, and then the men pulled into the falls and plunged over them. The open compartment of the major's boat was filled when she struck the first wave below, but she cut through the upheaval, and by vigorous strokes was drawn away from the dangerous rock farther down.

They were scarcely a minute in running through the rapids, and found that what had seemed almost hopeless from above, was really less difficult than many other points on the river.

The Howlands and their companions were now out of sight, and guns were fired to indicate to them that the passage had been safely made, and to induce them to follow; but no answer came, and two hours later the descent of the river was resumed.

A succession of falls and rapids still had to be overcome, and in the afternoon the explorers were once more threatened with defeat. A little stream entered the cañon from the left, and immediately below the river broke over two falls, beyond which it rose in high waves and subsided in whirlpools. The boats hugged the left wall for some distance, but, when the men saw that they could not descend on this side, they pulled up-stream several hundred yards and crossed to the other.

Here there was a bed of basalt about one hundred feet high, which, disembarking, they followed, pulling the boats after them by ropes.

The major, as usual, went ahead, and discovered that it would be impossible to lower the boats from the cliff; but the men had already brought one of them to the brink of the falls, and had secured her by a bight around a crag.

The other boat, in which Bradley had remained, was shooting in and out from the cliffs with great violence, now straining the line by which she was held, and now whirling against the rock as if she would dash herself to pieces.

An effort was made to pass another rope to Bradley, but he was so preoccupied that he did not notice it, and the others saw him take a knife out of its sheath and step forward to cut the line. He had decided that it was better to go over the falls with her than to wait for her to be completely wrecked against the rocks. He did not show the least alarm, and as he leaned over to cut the rope the boat sheered into the stream, the stern-post broke, and he was adrift. With perfect composure he seized the large scull-oar, placed it in the stern rowlock, and pulled with all his strength, which was great, to turn the bow down-stream. After the third stroke she passed over the falls and was invisible for several seconds, when she reappeared upon a great wave, dancing high over its crest, then sinking between two vast walls of water. The men on the cliff held their breath as they watched. Again she disappeared, and this time was out of sight so long that poor Bradley's fate seemed settled; but in a moment more something was noticed emerging from

the water farther down the stream; it was the boat, with Bradley standing on deck and twirling his hat to show that he was safe. He was spinning round in a whirlpool, however, and Sumner and Powell were sent along the cliff to see if they could help him, while the major and the others embarked in the remaining boat and passed over the fall.

After reaching the brink they did not remember what happened to them, except that their boat was upset, and that Bradley pulled them out of the water. Powell and Sumner joined them by crawling along the cliff, and, having put the boats in order, they once more started down the stream.

On the next day, August 29th, three months and five days after leaving Green River City, they reached the foot of the Grand Cañon of the Colorado, the passage of which had been of continuous peril and toil, and on the 30th they ended their exploration at a ranch, from which the way was easy to Salt Lake City. "Now the danger is over," writes Major Powell in his diary; "now the toil has ceased; now the gloom has disappeared; now the firmament is bounded only by the horizon; and what a vast expanse of constellations can be seen! The river rolls by us in silent majesty; the quiet of the camp is sweet; our joy is almost ecstasy. We sit till long after midnight, talking of the Grand Cañon, talking of home, but chiefly talking of the three men who left us. Are they wandering in those depths, unable to find a way out? are they searching over the desert-lands above for water? or are they nearing the settlements?"

It was about a year afterward that their fate became known. Major Powell was continuing his explorations, and hav-

ing passed through Pa-ru-nu-weap (or Roaring Water) Cañon, he spent some time among the Indians in the region beyond.

One night a council-fire was lighted, and around it the Indians gathered with Major Powell and Jacob Hamblin, a Mormon missionary. Hamblin spoke their language well, and had great influence with them. The Indians sat and listened to him with a death-like silence, and as he finished his measured sentences the chief repeated them, and all gave a solemn grunt.

But, first, Major Powell filled his pipe, lighted it, and took a few whiffs, and then passed it to Hamblin; he smoked it and gave it to the man next him, and so it went around. When it had passed the chief, the latter took out his own pipe, filled it, lighted it, and passed it around after the major's. When the Indian pipe came to him, the major was nonplussed. It had a large stem, which had at some time been broken, and now there was a buckskin rag wound round it, and tied with sinew, which was saturated with filthy juice.

To gain time he refilled it, and then engaged in very earnest conversation, and, all unobserved, he passed it to his neighbor unlighted.

He told the Indians that he wished to spend some months in their country during the coming year, and would like them to treat him as a friend. He did not wish to trade, and did not want their lands—his object was to learn about their cañons and mountains, and about themselves, that he might tell other men at home; and he wanted to take pictures of everything, and show them to his friends.

Then their chief replied :

“Your talk is good, and we believe what you say. We believe in Jacob, and look upon you as a father. When you



The Fate of the Lost Men Discovered.

are hungry, you may have our game. You may gather our sweet fruits. We will give you food when you come to our

land. We will show you the springs, and you may drink—the water is good. We will be friends, and when you come we will be glad. We will tell the Indians who live on the other side of the river that we have seen the one-armed man, and that he is the Indians' friend. We will tell them he is Jacob's friend.

“We are very poor. Look at our women and children—they are naked. We have no horses; we climb the rocks, and our feet are sore. We live among rocks, and they yield little food, and many thorns. When the cold moons come, our children are hungry. We have not much to give; you must not think us mean. You are wise; we have heard you tell strange things. We are ignorant.

“Last year we killed three white men. Bad men said they were our enemies. They told great lies. We thought them true. We were mad; it made us big fools. We are very sorry. Do not think of them—it is done; let us be friends. We are ignorant—like little children in understanding compared with you. When we do wrong, do not get mad, and be like children too. When white men kill our people we kill them. Then they kill more of us. It is not good. We hear that the white men are a great number. When they stop killing us there will be no Indian left to bury the dead. We love our country; we know not other lands. We hear that other lands are better; we do not know. The pines sing, and we are glad. We do not want the good lands; we want our rocks, and the great mountains, where our fathers lived. We are very poor, we are very ignorant, but we are very honest. You have horses, and many things.

You are very wise ; you have a good heart ; we will be friends. Nothing more have I to say."

Hamblin fell into conversation with one of the Indians, and held him until the others had left, and then learned more of the particulars of the death of the three men—for Howland and his companions were indeed dead.

They had come to an Indian village, starving and exhausted with fatigue, saying that they had descended the Grand Cañon. They were fed, and started on the way to the settlements, but they had not gone far when an Indian arrived from the east side of the Colorado, and told of some miners who had killed a squaw in a drunken brawl.

He incited the tribe to follow and attack the three whites, who were supposed to be the murderers. Their story of coming down the Grand Cañon was impossible—no man had ever done that—and it was a falsehood designed to cover their guilt. Incited by a desire for revenge, a party stole after them, surrounded them in ambush, and killed them with arrows.

This was the tragic end of Dunn and the Howland brothers—this the one sacrifice of life which the daring exploration of the Colorado cost.

Some time after his Western journey, Tom met Major Powell in Washington, and he was then surprised to find that this intrepid explorer (now chief of the Bureau of Ethnology) was a one-armed man.

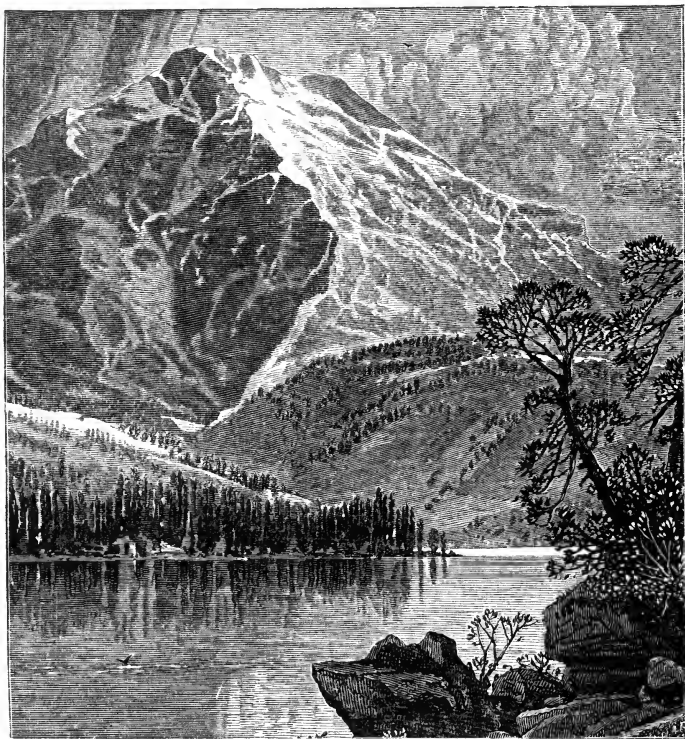
CHAPTER XIII.

OVER THE BOUNDARY TO MORMON-LAND.

BEYOND Green River City the train passes through an unlovely valley of sage-brush and greasewood—two shrubs which, instead of amplifying the earth with the brightness of vegetation, overspread it with a tangle of unsightly gray and sinewy branches. The sage-brush is so pallid and parched that its life-sap might have been absorbed in those heart-burnings of the earth whose external consequences are seen in many a pile of volcanic rock; its small, pale leaves are never fresh, and its fibrous limbs are always twisted and gnarled; but it holds to the soil with extreme tenacity, and it crops out in superabundance over miles and miles of territory, upon which it allows no closer semblance to greenness than itself to provoke comparison.

But, though the plains are so sandy and barren, the introduction of a little stream of water upon them is often followed by an outbreak of what seems to be spontaneous verdure, wonderfully bright and persistent, which shows how fruitful the soil may become under favorable treatment, and under such treatment three hundred bushels of potatoes have been raised from half an acre of ground.

Beyond the yellow and gray undulations of the nearer land, among which strange-looking masses of rock occasionally outcrop, the Uintah Mountains loom up, and bound the prospect with a line of deep, dark blue. They are visible for



Uintah Mountains.

hours ; sometimes, when the train rolls over a commanding crest, they are revealed from their purple bases to their snowy summits, and then, as it descends into the hollow, they are hidden in all save the highest tips. The peaks, or cones, dark as they seem at this distance of seventy or eighty miles,

are distinctly stratified, and rise two thousand feet above the springs that feed the streams in the foot-hills below. They are vast piles of compact purplish quartzite, resembling Egyptian pyramids on a gigantic scale, without a trace of soil, water, or vegetation; but the lower slopes are covered with arborescent vegetation, which is succeeded nearer the timber-limits by pines that have been dwarfed to low, trailing shrubs, and the ridges inclose some extensive basins of exquisitely clear water.

Then the borders of the celebrated Mauvaises Terres, or Bad Lands, are reached, and the railway meets the old overland stage-road, recalling the days when the pony express, the fast coaches, and the hundreds of emigrant teams passed by day after day—a period of which nothing remains but the tottering telegraph-poles, out of use and unstrung, and the deserted ranches which once provided cheer and rest for the wearied travelers.

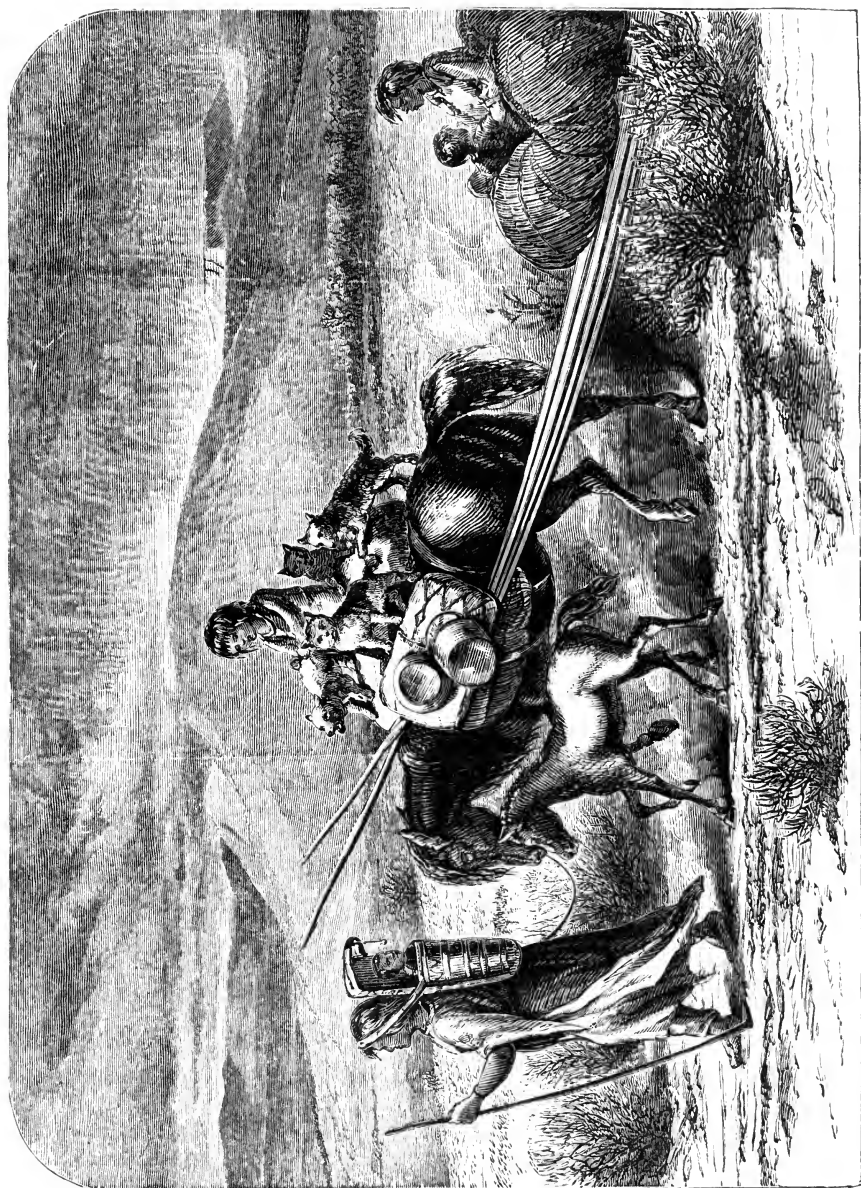
The Bad Lands, like the plains, are the burial-grounds of past ages, and some time ago Professor Marsh, of Yale College, found in them the remains of a rhinoceros, some turtles, some birds, and two extinct animals, the jaw of one of the latter measuring over four feet. He also found rattlesnakes in extraordinary numbers, and their humming soon became a familiar tune which excited little alarm or attention.

Sterile as the surface of the Bad Lands is, they are broken by many beautiful forms, which have been shaped by rain-drops and gritty sands. It seems incredible that the mere process of weathering, as the geologists call it, has produced the amphitheatres, colosseums, and temples that have

the grandeur of a classic city. The very pillars that clasp the portico of the temple are apportioned with exactness, and uphold a filigree cornice whose dainty carving bespeaks the chisel of a sculptor. But no hands have built or molded here. It is all the work of the spouts and drops of water, furrowing the rock and earth, tunneling and grooving with irresistible industry.

At one of the stations the train met a party of Indians moving their encampment from one part of this barren region to another. In this, as in everything else, save slaughter, all the labor was left to the women. The men were mounted, and rode carelessly and happily along, while their squaws followed on foot, trudging meekly over the burning desert. The latter carried their youngest children in baskets, which were suspended from the forehead by rawhide straps and swung over their backs; and, despite the weight, they held their shoulders straight. Nearly as pitiable were the ponies, which were loaded from neck to buttock.

One poor brute, led by a squaw and followed by its colt, struggled along with half a dozen heavy packages heaped upon its back, and to these were tied pots and pans and various household articles; upon the top of them was a naked little girl, and she was surrounded by four saucy pups. This was not all. Secured to the packages, and trailing on the ground behind, were several poles, about eighteen feet long, which formed a wheelless carriage, upon which rode another and older squaw and a little boy, seated upon a bundle of robes which could not have weighed less than two hundred pounds.

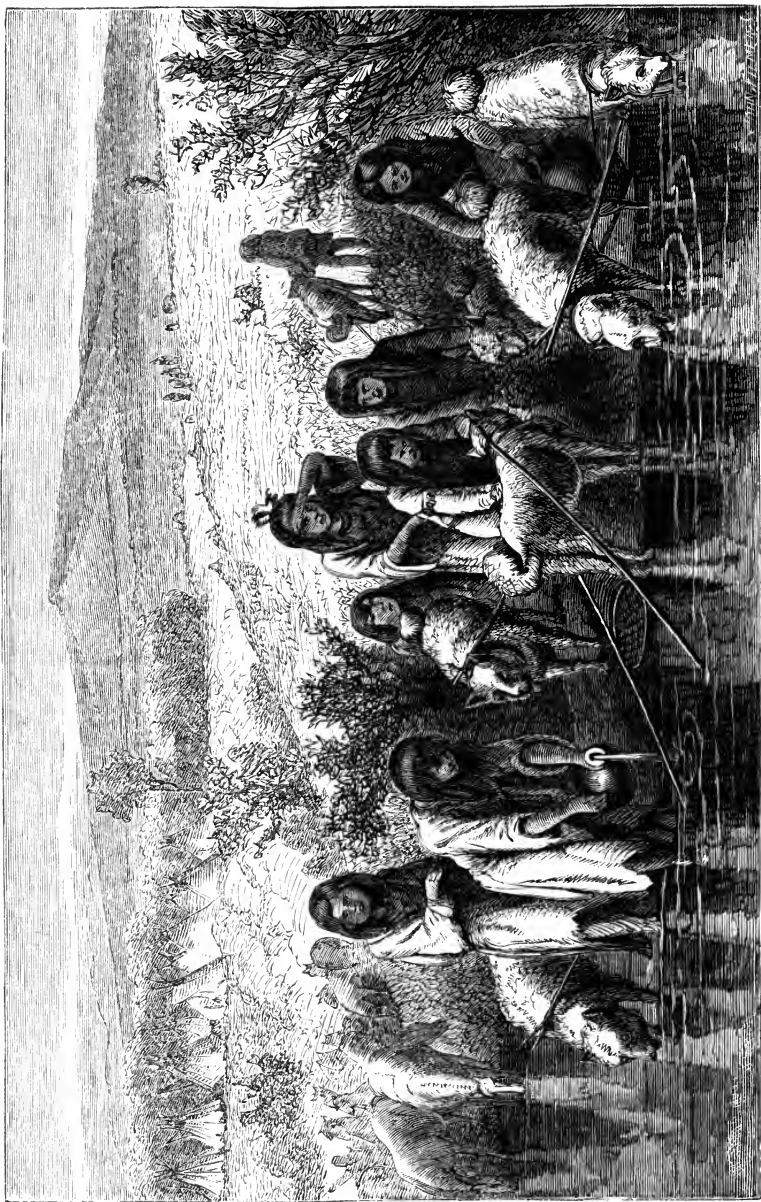


Indians Moving.

The gayety of the chiefs, one of whom made a feint of pointing an arrow at Bob, provoked Peter, who was usually charitable, to say that it would have given him pleasure to see them subjected to a year's hard labor on the tread-mill.

He did not think of the terrible ordeal through which a young Indian has to go before he earns his independence, and is relieved of the drudgery which falls to the lot of his mother and sisters. He is treated like a Spartan, and only wins a place among the chiefs by showing that he can bear the most excruciating pains without a murmur. His wife, his home, his honors, and his liberty, are secured by his courage. Any cowardice brings contempt upon him, and from his earliest years he is inured to sufferings which would kill a civilized man. While he is a boy his father takes him out of camp and cuts the flesh around one of the sinews of his chest. This operation is performed without a word of pity on one side or a plea for mercy on the other. The elder Indian then drives a pole in the ground and inserts the upper end of it between the boy's flesh and the sinew, so that, standing upright, he can not move without torture. He leaves him in this position, and the little fellow has to wait until the wound partly heals before he can release himself. In many other ways, no less cruel, his mettle is tried, and his probation is full of suffering.

In all domestic life the woman is the worker. She dresses the skins which are made into tents and clothing; she hews the wood for the fire, and cooks the meals; and, when her tribe moves, she is not only the packer, but the carrier also of much of the property.



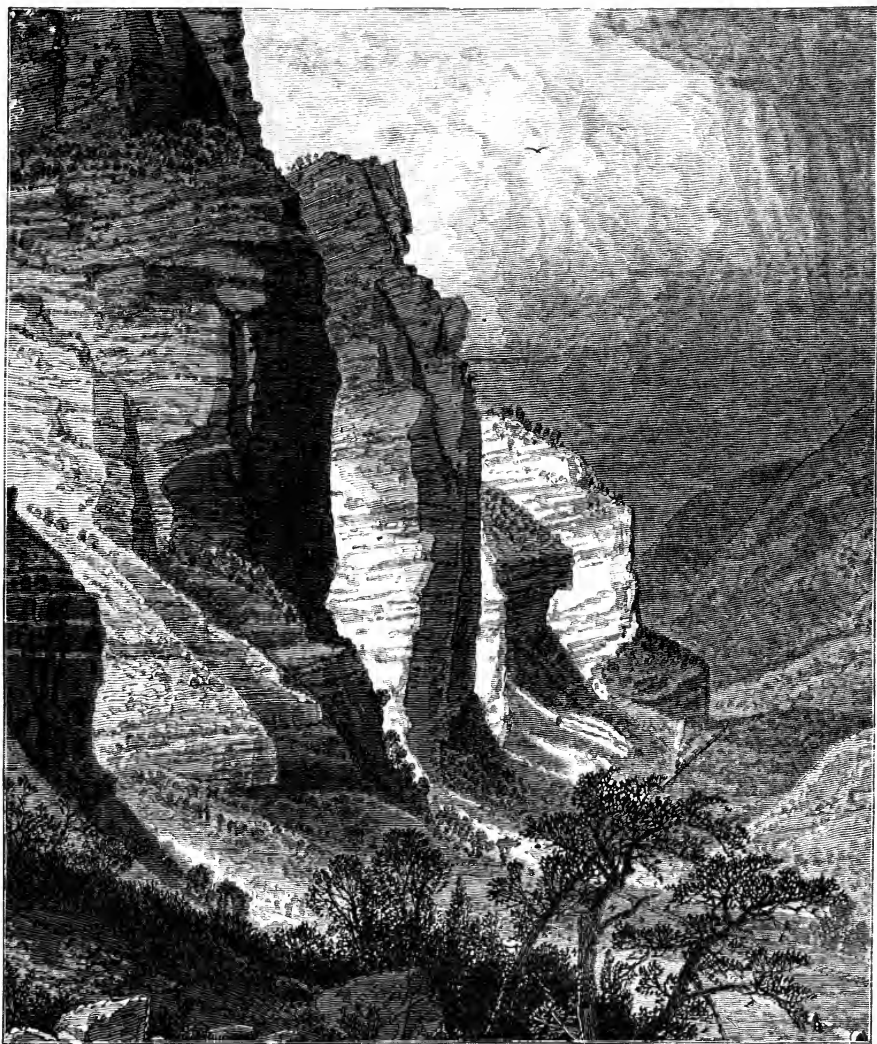
Indian Water-carriers.

One of her duties in camp is to provide water. Though water is much needed by them, the Indians seldom make encampments on the banks of a stream, and the labor of supplying them with this necessary of life is divided between the dogs, the children, and the squaws. Large earthen pots of their own manufacture are triced on poles, the opposite ends of which are fastened to the sides of a dog, and on the primitive vehicle thus formed the jars are carried to the river.

The train was now approaching the Utah boundary-line, and Tom's attention was attracted by clusters of dome-shaped furnaces, which are used in the manufacture of charcoal for the smelting-works of the mines in the Uintah and Wahsatch Mountains.

The Chinaman becomes a figure in every scene—as railway-laborer, cook, waiter, washerman, and bootblack. Another feature is the high trestle-work bridge which crosses the landscape, supporting a V-shaped trough, from which the water drips—an object familiar enough to residents on the Pacific coast. This is a flume, and the wood used in the charcoal-kilns is silently floated down it from the forest, a distance of twenty-four miles. In Nevada, and in all other parts of the far West where the lumber business is large, the flumes are as common a sight as the road or the trails.

A small sign-board marks the dividing line between Wyoming and Mormon-land, and the boys fluttered with expectation as the train approached Echo and Weber Cañons, in which are embraced sixty miles of the grandest scenery in the world.

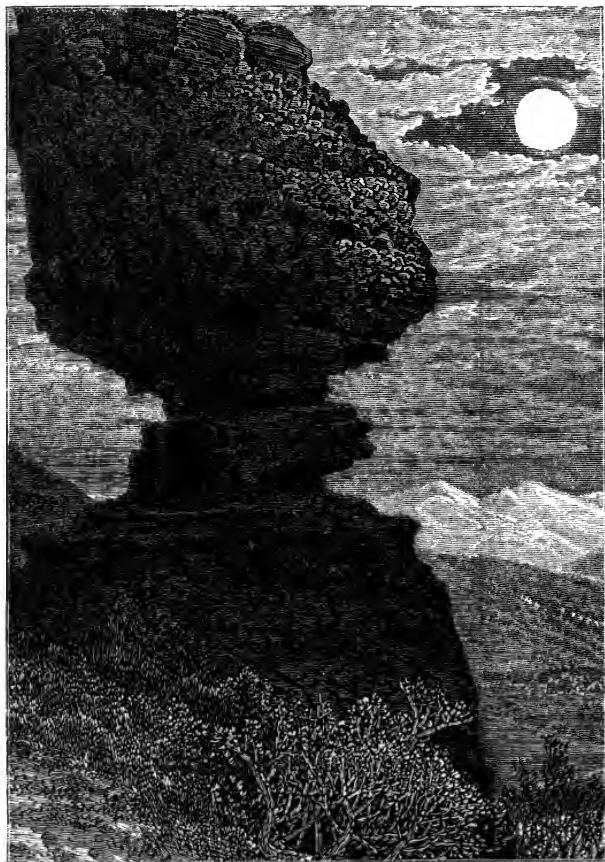


Echo Cañon, Utah.

Idaho and Wyoming are on the north, Wyoming and Colorado on the east, Nevada on the west, and Arizona on the south.

The southern side of Echo Cañon is formed by a range

of well-rounded, high hills. Another range of similar hills would make a characteristic "open cañon." But all down the northern side there is a sheer bluff or escarpment from



Pulpit Rock, Echo Cañon.

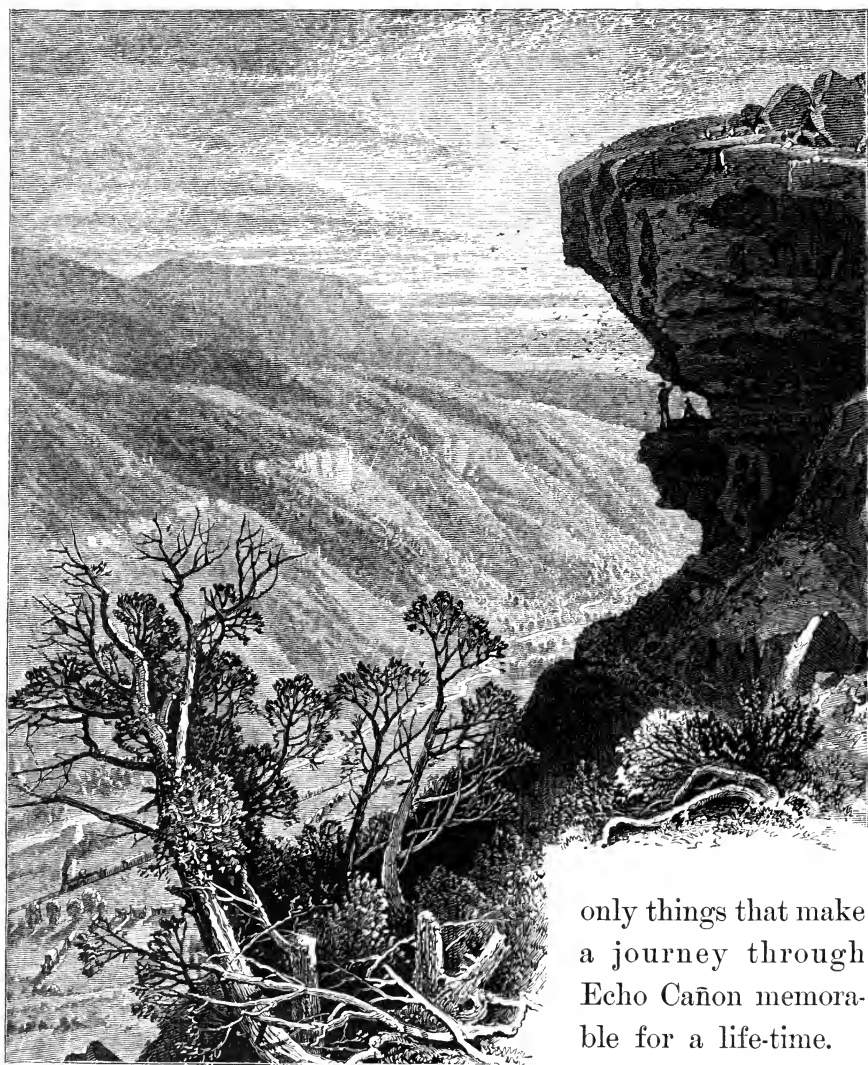
five hundred to seven hundred feet in height, and of a reddish color, which increases in warmth until it seems to glow with living heat. The contrast goes further. The opposite

southern rocks are yellow, and the soil has slipped away in places, leaving a broad patch of the naked sandstone visible in the surrounding green. Occasionally a valley intersects the main cañon, and through it the white tips of the Wahsatch and Uintah Mountains, with the upper slopes of dark blue or purple, can be seen.

That most amusing of travelers, the Baron de Hübner, has described his impressions of this part of the overland journey as follows: "The descent to the Salt Lake is done without steam, merely by the weight of the carriages, and, although the brake is put upon the wheels, you go down at a frightful pace, and, of course, the speed increases with the weight of the train; and, the train being composed of an immense number of cars and trucks, I became positively giddy before we got to the bottom. Add to this the curves, which are as sharp as they are numerous, and the fearful precipices on each side, and you will understand why most of the travelers turn pale."

There is a good deal of exaggeration in this picture, but the real experience is sufficiently exciting as the train sweeps down and sways from side to side with increasing speed, now threatening to hurl itself against a solid cliff, then curving off like an obedient ship in answer to her helm.

He must be a very rapid observer indeed who can comprehend all of the varied beauties and curiosities that follow each other. The high, abrupt wall on one side, so smooth that it might have been cut by a saw, the lofty hills on the other side, and the glimpses of mountains whose snows never melt, are impressive and interesting; but they are not the



Hanging Rock, Echo Cañon.

only things that make a journey through Echo Cañon memorable for a life-time.

At the head of the cañon there is a formation called Castle Rock, which imitates an old, dismantled fortress, and near by is another formation, called the

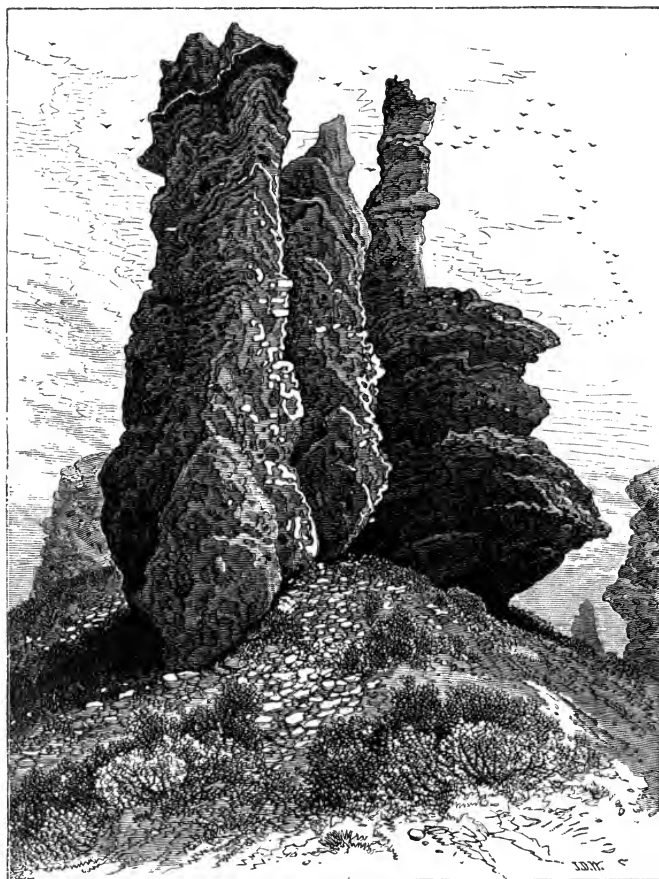
Pulpit, on account of its likeness to the object of its name, and on account of a tradition that from it Brigham Young preached to the Mormons as he led them into their promised land. Next come Sentinel Rock and Hanging Rock.

From such a point of view as Hanging Rock, or the ridges above it, a much better idea of the tumultuousness of the surrounding country can be obtained than from the bed of the cañon. The earth is split by a score of transverse ravines, which extend like blue veins from the main artery and map the face of the country with shadows; isolated columns, positive and brilliant in color, stand alone in their chromatic glory without a visible connection with the main rock from which they were originally detached; odd groups of conglomerate, much like inverted wine-glasses in shape, and plainly banded with several strata of color, sprout out like so many petrified mushrooms; and, clasping all within their basin, are the circling mountains of the Wahsatch and Uintah ranges—silvered with perpetual snow on their acute peaks, and impenetrably blue where the pines are. These two chains are among the most picturesque of all the Western mountains. They fairly bristle with peaks and lateral ridges, and they soar from the plain at a bound, so to speak, without the concealment and dwarfing effect of foot-hills.

The swift water of Weber River winds by the track through a channel overhung with bright shrubs; and the immigrant road, upon which large cavalcades are still found traveling, crosses and recrosses the iron pathway, which from one of the neighboring heights appears like a fine thread of silver, while the train with its locomotive and lofty Pullman-

cars becomes a toy in contrast with the Titanic rocks among which it is rushing.

The cañon opens into a wide valley completely surrounded



The Witches' Rocks, Weber Cañon.

by mountains; but, wherever tillage has been possible, the land has been cultivated, and a number of Mormon settlements have sprung up.

In about half an hour the mountains again close in, and the train plunges into the very heart of them. The high peaks that have hitherto been distant descend into the cañon at an angle of 80° , and loom directly overhead; lateral ribs of rock project from the slopes, and some of them are of prismatic or fan-like formation. The Weber River flashes through the ravine, and breaks into a wrathful white as it leaps from ledge to ledge; even above there is no calm, and the clouds are torn into shreds, and contribute to the general tumultuousness of the scene as they drift to the east.

A lone tree marks the thousandth mile west of Omaha, and near this there is a curious formation called the Devil's Slide, two parallel walls of granite, projecting down the mountain-side.

Again the cañon opens into a valley, where, in contrast with the sterility of the rocks, the vegetation is abundant; the orchards are bowed down with fruit, and Mormon children offer apples, peaches, apricots, flowers, and cider for sale at the little stations.

Then the train shoots through a shorter cañon by the Devil's Gate, and there before the traveler lies the valley of the Great Salt Lake, shut in by the spurs of the Wahsatch Mountains.

Fully pleased with this part of their journey, the boys alighted at Ogden. Passengers were flitting hither and thither, promenading or looking after their tickets. Newsboys were selling the New York and San Francisco papers; eager brokers, with their hands full of coin, were offering silver and gold in exchange for bills; dining-room gongs were booming

furiously ; a little hunchback was selling live water-snakes, pictures of Mormon prophets, and fossils, and hotel agents were



Devil's Slide, Weber Cañon.

soliciting custom. The moving throng was cosmopolitan in dress, manner, and language. There were sleek Chinamen ; high-booted and red-shirted miners ; "swell" tourists from Paris, Vienna, and London ; long-haired Mormon elders ; innocent-looking Scandinavian peasants, and Ute Indians, wrapped up in dirt and resplendent blankets, and bedaubed with vermilion paint.

The latter take as much interest in the arrival of the daily express as children take in the circus, and dress themselves in their finest apparel to celebrate it.

Leaving the station, Tom met a queer pair of them, whose dress was more nondescript than usual. One of them was as notable for the elaborateness of his costume as the other was for the scantiness of his, which was not a

matter of choice, but of poverty. In the simple and characteristic dress of his race, robed in the loose folds of his blanket when idle, or plumed and divested of every unnecessary garment when prepared for the chase or the battle, the Indian is a picturesque figure; but when on the borders of civilization, he puts on odds and ends of all kinds, with the indiscriminating vanity of a child, and becomes ridiculous. Nothing in the way of ornament is distasteful to him. He wears the lid of a tin mustard-box, strung around his neck by a shoe-lace, with the conscious dignity of a much-decorated diplomat. He affects trousers, but never wears them until he has cut out the parts which decency considers indispensable. Any sort of a hat is adopted by him, but he objects to the crown and brim, and sets the remnant off with feathers and ribbons. He becomes a symbolic figure of the junk-shop.

The leader of the two met by Tom wore a coat, of a pattern which made its history mysterious. It was an antiquated, epauleted, frogged garment of a fashion long out of date—more like a discarded costume of a theatrical wardrobe than anything else; and underneath this was a checked cotton shirt, leaving his legs naked below the knees. His hat was an old silk one, with several loose feathers stuck in the crown, and a fringe, cut off a woolly hearth-rug of a blazing crimson, around the brim. His coarse, black hair was plaited and hung in braids over his epaulets, and from his neck depended a string of metal disks, among which were a United States uniform-button, the top of a canister, and the tin tag of a “plug” of tobacco. Thus accoutred, he carried himself erect with a severe disregard of his ludicrous-



Indian Dandies at Ogden.

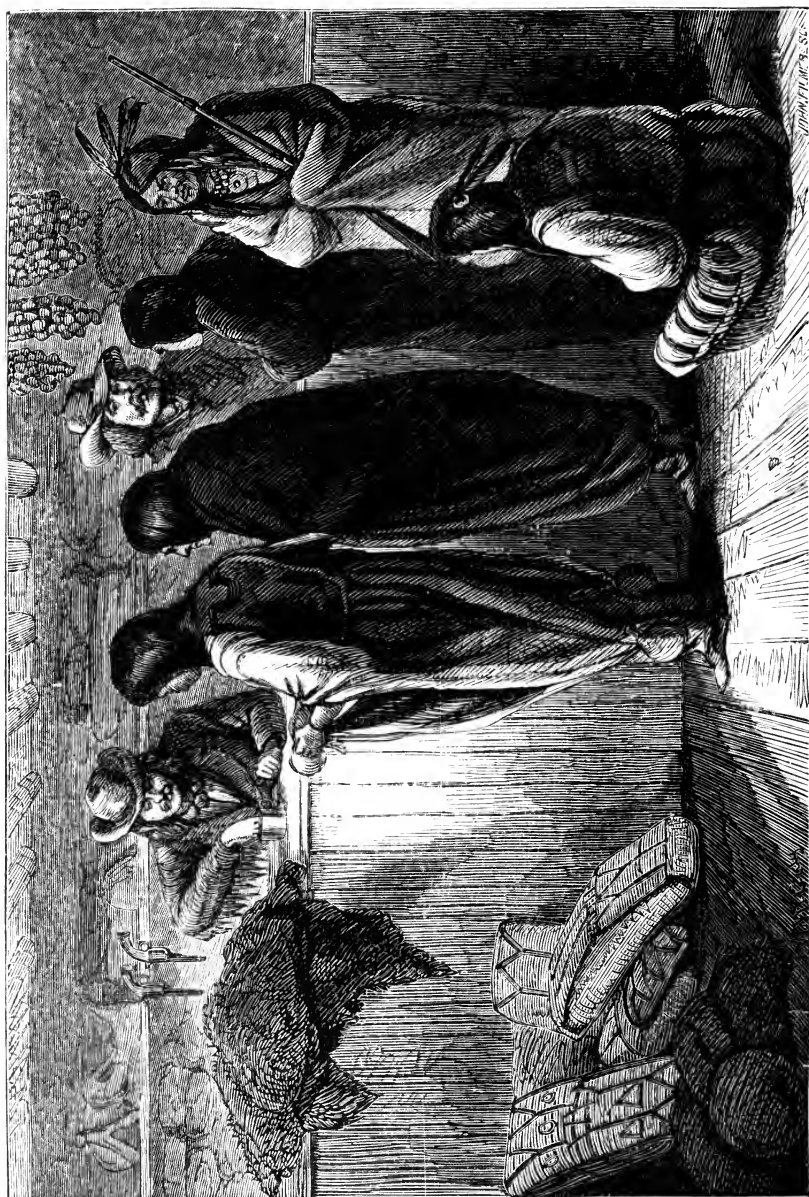
ness, strutting along, bowing haughtily to Tom, and muttering the customary monosyllabic salute, "How!"

His follower seemed to feel how completely this splendor eclipsed him. He had no medals, nor "stove-pipe," nor feathers, nor fan such as that—a crow's wing—which his companion carried. He crept, with a soured face, at a respectful distance behind the splendor, and was plainly conscious of the ill adjustment of the world and the unfair division of its riches, as well he might be, for he wore nothing but a white shirt, variegated with dirt, and a Tam o' Shanter hat.

But some of the Indians were less ambitiously attired, and Tom saw a group of them in a dark little store, who retained the simple dress of their race. Some of those at the depot were handsome and dignified fellows.

Ogden spreads out from both sides of the depot in broad, watered, shaded streets; the white houses are set in gardens; thrift, neatness, and industry are embodied everywhere. No wonder that the inhabitants, like nearly all Mormons, are attenuated, weazen, and sad-looking. To say that they are lightly built would not be correct, for they are not built at all, but appear to be hung together by invisible wires. Every vegetable that is growing and every acre that is green has cost them untold labor, and whatever success they have attained has been wrested from the earth in a desperate struggle.

How much they have done can be seen to better advantage at Salt Lake City, which is thirty-seven miles south of Ogden. Even the station is fenced in with verdure, and the poorest cottages on the borders of the city are ornamented with the vine and trellis. The first street entered is an ex-

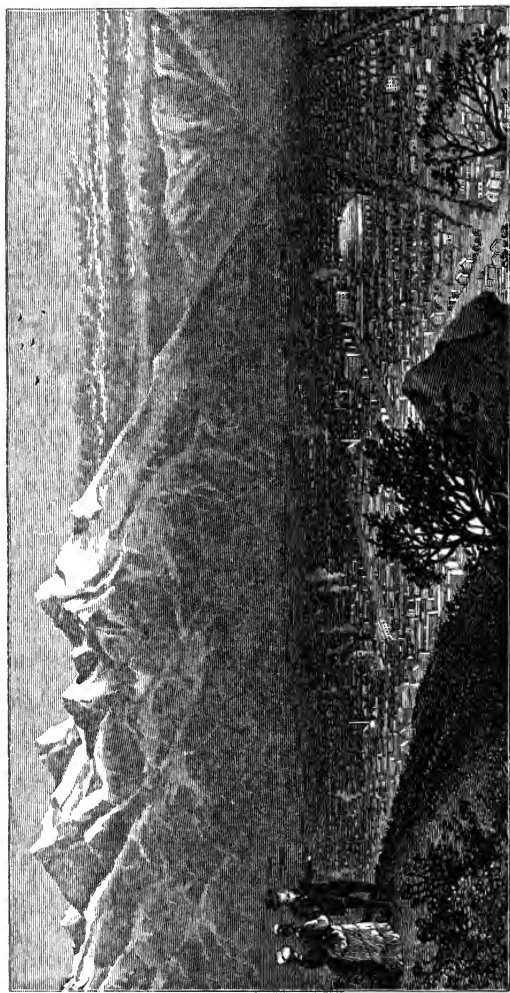


Indians Trading at Oyden.

ample of all that divide the city into handsome squares or blocks; the roadway is firm and smooth; the sidewalks would be no discredit to London or Paris. Clear streams of water flow along the curb at both sides, and feed the lines of shade-trees, not yet fully grown, which are planted with the same exactness of interval as cogs are set upon a wheel. Nothing is dilapidated; everything shows care and watchfulness; the unpleasant loafer, whom we have come to look upon as a large part of the far Western railway town, is invisible; the horse-car and omnibus conductors are impressively civil; the crowd at the station and in the streets is a most respectable crowd. But no one looks happy. That struck the boys more than the beautiful situation of the city.

The generosity of space is magnificent. All the streets are one hundred and thirty-two feet wide between the fence-lines, including twenty feet of sidewalk on each side. The blocks contain about eight lots apiece, each lot measuring about one acre and a quarter, and the builders have been required to set their houses at least twenty feet back from the front fences of their lots. Fifteen or twenty years ago there was scarcely a structure of superior material to the convenient adobe; but now, when the harvest of the almost superhuman toil of pioneer-days is being reaped, wood, brick, iron, granite, and stucco are brought into use.

In summer the atmosphere would be sickly with the combined aromas of the flowers, were it not for the stirring winds that are constantly blowing from the mountains; and many of the houses in the business quarter of the city are covered by sweet-briers and vines, which give them a countrified air



Salt Lake City, from the Wahatch Range.

in forcible contrast to the iron-and-brick realities of the mercantile stores adjacent to them.

The lake is a few miles away from the city, and the air blows from it the scent of its brine. The boys expected to see a sullen waste of water, stagnating between low and reedy shores, but what they saw was something very different—a great inland sea, with mountainous islands in it, upon which the atmosphere distills rainbow-hues, and a border of blue and purple and golden peaks,

white on the tops with the frosted crowns of everlasting snows.

They bathed in the water, in which it is almost impossible to sink, and when they came out, incrustated with salt, they felt an uncontrollable gayety.

“I never felt so young before,” said Peter, who was old

for his years, as he danced on the white shore and whirled his towel in the air.

A day or two later, while Tom was standing in front of the Walker House, he saw a gentleman approaching whom he had little expected to see. It was Dr. Yarrow, the naturalist of the Wheeler Expedition.

"I am going," he said, after explaining that he had been detached from the Colorado section of the expedition, "to Pang-witch Lake for some of its famous trout, and then I shall join the main party. What are you up to?"

"We are loafing," replied Tom. "In two or three weeks we shall start off for the Sierra Nevada, and then go home."

"Why not come with me? I can arrange for your riding-animals."

The proposition was an irresistible one. Tom and Bob accepted it, but Peter had received a letter from his employers, which requested him to go up into Montana for descriptive material. He, therefore, had to separate from his friends for a few weeks, and he started northward, while they left on the next day with the doctor for southwestern Utah, where they were destined to see more of the hardships of an explorer's life than they had yet experienced.

CHAPTER XIV.

IN PERIL WITH THE WHEELER EXPEDITION.

PANG-WITCH signifies "fish-lake," and plenty of trout were found in it, some of which were bottled in alcohol for the Smithsonian Institution, while others were put away by an unscientific process which gave great satisfaction at the mess-table.

The doctor's orders then required him to cross a small range of mountains lying south of the lake, and to join the main party in the valley of the Sevier River.

To cross this range it was necessary to trust to a worn-out Indian trail which he had been informed led directly over a mass of lava at least six miles wide at the place of crossing. Some Indians to whom he had spoken regarding it had shrugged their shoulders, and said, "*No bueno, no bueno.*"

The party consisted of six men in all, and at half-past four, on the morning of a beautiful day, they broke camp and started. They did not know where the trail over the mountains began, and they had to hunt for it, all proceeding from a central point, radiating in different directions, and then coming together again. After several such attempts the doctor

found the trail, which was barely distinguishable, and away they went, with the lucky discoverer and his two young guests in the van.

As they gradually worked their way up the mountain-side a little wreath of smoke could be seen for a moment on a peak five or six miles distant. This was a notice from the Indians to their friends farther south that a party was moving, and similar smokes preceded the explorers throughout the journey. After a climb of an hour they reached the summit of the first mountain, and rested for a few minutes to look around.

At their feet lay a valley, with isolated patches of green and clumps of dwarf oaks, on the other side of which was another mountain, three or four miles distant as the crow flies. On one side of this could be seen a dreary, bleak-looking patch, broken into masses of what appeared to be bowlders, without vegetation or anything to relieve its monotony. This was the lava already alluded to. At a distance it did not appear very formidable, but the explorers soon found that the distance was deceptive.

Their progress down the mountain was comparatively easy, and before long they reached the edge of the lava. It would be impossible for a painter to depict the scene that then met their view. On all sides were masses of volcanic vesicular basalt, varying in size from a pebble to a good big church, which were heaped together in the worst confusion. Apparently there was no entrance to the beds, and it was only by dismounting and examining marks previously made by the hoofs of horses that the men could tell where to start in.

For the first two or three hundred yards it was possible to ride, but after this they were obliged to dismount and lead their animals. The trail followed the edge of the lava, round the side of the mountain, and occasionally a bare spot was reached where washes had taken place. In traversing the gulches thus formed, a false step or the crumbling of the soil beneath the feet would have been fatal. Several such places were encountered, and one was so deep that each man hesitated before attempting it. A consultation determined them to try and partly fill it up, which they did by rolling bowlders into the chasm; but as these were in all sorts of irregular positions, it was very hard for the animals to find a secure footing, and the passage was only made after a good deal of scrambling and sliding, over two hours being consumed in accomplishing it.

For some distance they again threaded their way through the blocks of lava, over some of which it was necessary to climb. The mules frequently got caught by their packs between two blocks, and occasionally, after painful efforts to reach the top of some slippery mass, they rolled down to the other side. The doctor's mule, Arsenic, rolled thirty feet down a slope, over lumps of stone of sufficient size to wound him severely; but an occasional murmur when his sides struck the rock was the only indication that he was at all hurt.

Time and again the now wearied men were obliged to remove the packs, and carry them for some distance. At one wash-out on the mountain-side they found it necessary to remove the packs, fasten ropes or lariats to the animals, and push and lower them down the declivity; then to push, coax,



Basaltic Mountain on the Edge of the Lava.

and haul them up the other side to the trail again. Their supplies, saddles, and the rest of their equipment, had to undergo the same process.

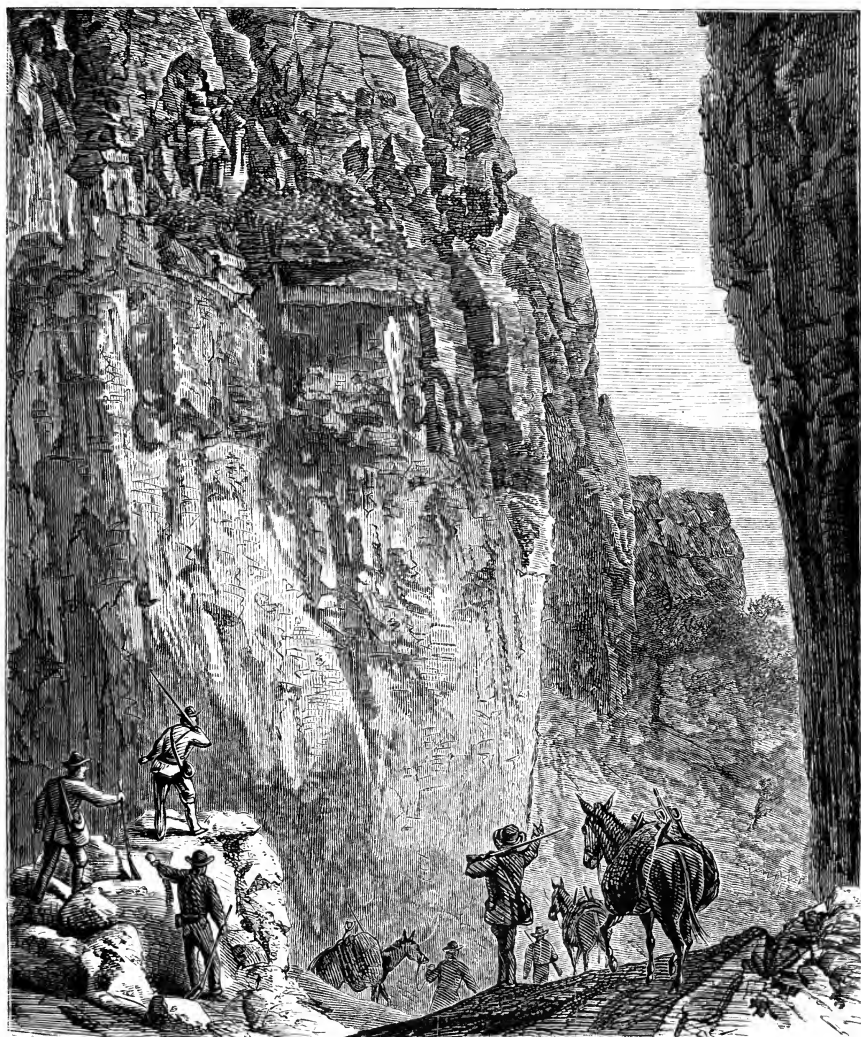
It was now about noon, but Dr. Yarrow had determined not to rest until he had cleared the lava. Much the same im-

pediments as have been described constantly presented themselves until the party at length nearly reached the top of the mountain, and what they supposed to be the limit of the bed. A smooth trail, which descended, tempted them to remount, and for a few minutes all went well; but a cry from one of the men in advance, and a confused noise, told the doctor and Tom, who were now behind, that something had happened. A packer, who had been towing one of the pack-mules, had not been paying enough attention to the trail, which suddenly broke off in a steep gravelly hill, and he had fallen down, pulling the pack-mule after him.

Tom could hear a thud, thud, thud, as the unlucky man fell from bench to bench, and he rushed forward with the doctor, expecting to find a horrible sight at the bottom of the precipice.

But the packer had been able to get loose from his saddle, and had only sprained his wrist, while the mules stood shaking themselves, with their packs undisturbed, as if nothing had happened.

They rested now, believing that they were out of the lava, but it took still another hour of hard work before the end was reached. About four o'clock they struck a gentle incline, which the doctor knew led to the valley of the Sevier, and at nine o'clock they came upon a hospitable Mormon ranch, the proprietor of which informed them that the main party had passed by that place in the morning. He allowed them to make some coffee at his fire, and on that beverage and hard-tack they supped, being too tired to prepare a more elaborate meal.



The Accident to the Pucker.

Tom and Bob now proposed to return to Ogden, where Peter was to join them, but they finally decided to remain a few days longer with the main party, which was found at a

little Mormon village near the North Fork of the Rio Virgen. The lieutenant in charge was informed that if he followed the usual road he would be a week in crossing the mountains to Shonesburg, but that by following a somewhat difficult Indian trail he could reach that place in twenty-four hours. He had determined to send the wagons and some of the party by the former, but, in view of what he had been told, he decided that he, with the pack-train, would attempt the trail; the doctor, Tom, and Bob accompanying him.

At an hour before sunrise the call to turn out was sounded, and after breakfast the party was called together to receive instructions.

"Be sure and fill your canteens with water," said the leader, "and take plenty of hard-tack in your haversacks, for after leaving the valley we shall have no water, and no one knows whether or not we shall have another square meal for a day or so."

All preparations having been made, the party started and rode along the river-bottom until twelve o'clock, nothing of interest appearing. A gradual ascent then led them to the top of the foot-hills of the mountain which they were to cross. At this point they reached the more circuitous and safer road; and there, also, was the shorter trail which they intended to follow. Some wag had planted a sapling at this point, and on it was a piece of plank bearing the following inscription: "Take this road, and before you reach the end you will wish you had taken the trail. Follow the trail, and you will wish you had taken the road." This was ominous, but orders had been given, and the party took the trail. It

led down the side of the foot-hills and through a beautiful valley, which was charming in every way except that it lacked water. It was intensely hot, and on all sides complaints could be heard from those who had already emptied their canteens. The doctor had husbanded his water with the greatest care, but man after man came up for a drink, until he himself had scarcely any left, and Tom and Bob had also given away nearly all of theirs.

It was not until four o'clock in the afternoon that they came to the foot of the mountain, and by that time the men and animals were nearly exhausted. They rested a few minutes, and the lieutenant and the doctor debated the question as to whether they should attempt to continue, or make a dry camp and start afresh in the morning. A Western surveyor detests nothing so much as a dry camp, and, as the prospect of going to bed dry and waking in the morning drier was not tempting, all the members of the party voted to keep on along the trail.

From the very beginning of the upward march the way was terrible, and the only safety was for the men to dismount and climb, dragging their animals behind them by the bridle. In many places the trail was undistinguishable from the surrounding surface, and they were obliged to watch it closely in order to avoid straying. It is an actual fact that in some places the mules were obliged to leap or climb over bowlders four or five feet in height, and Arsenic took some leaps which might have put an old steeple-chaser to shame.

After over an hour of hard climbing, it seemed, looking behind, as if they had scarcely left the valley. The lieutenant

ant led and the doctor followed, while Bob and Tom brought up the rear. Another climb brought them to a little table of rock, where they stopped, and the doctor and the boys finished the last drops of water in their canteens, the poor mules turning their heads as if eager for a little.

It may be imagined that, if it was hard for the unincumbered animals to make the ascent, it was much worse for the pack-train, and long before the former had reached the level spot the tinkle of the bell-mare and the cries of the packers had died out in the distance. As night was coming on, it was imperatively necessary that the whole party should keep together, and one of the men in advance was sent back to hurry up the laggards. His companions did not see him again for three days.

In the mean time some of the party came up, and the lieutenant ordered them to string themselves out along the trail, so as to keep the animals from straying. The darkness crept on, and the mountain-sides became streaked with all sorts of weird shadows. But the rest of the pack-train did not appear.

Believing that it would be better to try and reach the top of the trail before it became too dark to find the downward path, the lieutenant and a few others again began to climb over bowlders, over fallen trees, down gulches, and around the sides of cliffs which frowned over apparently unfathomable abysses below. A feeling of fear took possession of the boys, and more experienced members of the party than they were similarly affected. Still they pressed on until they attained a point which might in justice have been called a "jumping-off" place. The trail ended on top of a rock with a double slope.

It was now so dark that it was necessary to light matches to see the trail. Each man looked for it in a different direction, the matches flashing out like fire-flies, and it was Tom's good fortune to find on the farther slope some marks leading downward. He called the lieutenant and showed them to him, suggesting that the trail probably led that way.

"Impossible," said he. "Do you not see at the bottom of the slope a wall of solid rock forty feet high? We can never get over that."

Tom slid down the rock, and in a few moments passed around the wall and struck the continuation of the path. He carried the news of his discovery to the others, and by dint of pushing they got the animals to slide down the slope, and then led them by the path which passed around the wall. The path was about eighteen inches wide, and was, in fact, so narrow that the men walked around it, their backs to the wall, leaving the mules to follow as best they could. The sagacious animals, in passing, crept against the walls, and almost rubbed their saddles off in pressing against them.

The party now gave up all hope of finding the pack-train, and as it would have been impossible to retrace their steps, they kept on, the darkness being so great that they literally had to feel their way. In places along the side of the mountain the trail had been washed out, and timber had been placed over the chasms. It may be imagined that these bridges were not pleasant to pass, but they could not be avoided. Occasionally the men went over on their hands and knees, their mules following like dogs.

At one place, in particular, they heard a crash, and a voice

in the darkness, saying, "There goes my mule!" but the poor creature gained his footing in some miraculous way, and was unhurt.

The whole downward course of the trail was perilous in the extreme, but, after what seemed to be years of hard



"Nothing in the house savin' flour and salt."

work, the mules suddenly brayed and started down the path at a break-neck speed, almost pushing some of the men over. The trail now became better, and in half an hour the ex-

plorers were lying on the banks of a little stream, licking up the water which the mules had scented from afar with wonderful instinct.

Not knowing which direction to take, the men let the mules choose the path, and in about an hour they reached Shonesburg, and knocked at the door of a fair-looking house. Could they have something to eat and a place to sleep?

"Well," said the occupant, who was a patriarchal old gentleman, "I have nothing in the house savin' flour and salt; but I will make you some dumplings, and, if they don't satisfy you, my garden is full of grapes."

They tried the dumplings, but abandoned them for the grapes, of which they must have eaten several bushels, while the patriarch, seated by his bare table, sat by and watched; and at about midnight they "turned in," without bedclothes, on a heap of corn-stalks.

The trail appeared ten times more dangerous by daylight than it had done at night, and the people at Shonesburg refused to believe that the party had crossed it.

Three days later the survivors of the pack-train appeared. Five of the mules had fallen over cliffs and been killed; the men had been without water for forty-eight hours; all the baggage had been lost, including one package belonging to Tom and another to the doctor, containing all his specimens. Tom professed that his loss was not serious—it was only a roll of camp-bedding; but he kept to himself the secret that in the bedding was a photograph (by Sarony) of Miss Polly Braithwaite.

The cabin of the patriarch who had treated them so hos-

pitably the night before proved to be barer in the morning than it had seemed. The old gentleman had a fixed position by his small window, where he constantly sat watching the procession of winged and creeping things which had made his ragged garden-patch their own. He was not unhappy. The sunshine was nearly all that had been left to him out of a large fortune hastily made in mining, and more hastily lost in gambling, and he said he found the sunshine enough, "as long as you've got a bar'l o' flour an' a sprinklin' o' salt."

The doctor became resigned to the loss of his treasures after a chat with the philosophic old gentleman, but Tom could not be comforted. He wanted to be nearer the great lines of communication with the East, and in a few days he and Bob were again in Ogden, where they found Peter waiting for them.

CHAPTER XV.

A LETTER FROM MONTANA.

PETER's experiences while separated from his friends had not been as thrilling as theirs, but he had seen a good deal of Montana, and had written a series of letters to his paper on that subject. As the reader may, perhaps, be interested in what he saw, we quote the following from his correspondence, "disclaiming," like the editors of the quarterly reviews, "all responsibility for his utterances," though we, who have known him intimately since he was an infant, must say that we have always found him to be a painstaking inquirer and a conscientious writer:

If you look at any pictures of Montana (so the letter read) you will see "flumes," tunnels, ditches, miners, sandy plains, distant mountains, multitudinous mule-teams, Chinamen, and other characteristics of a country in which hydraulic mining is carried on. Hydraulic and placer mining is the chief industry of Montana, and every fifth man is connected in some way with the mines.

When, therefore, you come away from the Territory, your mind is not impressed with the pictures of pastoral life and

its adjuncts of lawn, meadow, and garden, but what you have noted are the long skeleton flumes and the devastated hills out of which the miners were washing the gold.

Money is not always made with ease, for mining, as much as agriculture or coal-heaving, demands effort, which is rewarded in most cases with no more than the wages of a house-builder or a hay-maker; but it comes in with uncertainty, both as regards the time and the amount, and therein is the trouble. Whenever a man's income is a matter of chance, it is never disbursed with the same care as the wages which come in at regular intervals; and the miner of Montana, working with his "dust-pan" and "cradle" individually, or in companies with more elaborate machinery, liable to all the favorable and unfavorable changes of fortune, never holds to his earnings, but spends them with ridiculous prodigality, whether they are small or large: hoping, if they are large, that his luck will continue to be propitious; and if they are small, that the next revolution of Fortune's wheel will make them large. A thriftless spirit of speculativeness is the consequence. In every sunny corner of the towns, and in every saloon, the rattle of dice and the slangy pass-words of gambling-games are heard incessantly; the gutters are filled in the morning with the soiled packs of cards thrown away after the play of the previous night; at midday, or at midnight, a stranger may enter one of the saloons and see an eager, feverish crowd of men, old ones and mere boys, staking money and waiting with terrible interest for the result.

After a few days spent in one of the frontier towns a visitor may wonder if the great West is really a credit to

us. Standing at one end of the main street, he sees a sight which probably is a novel one to him. The parallels of stores, which are mostly built of wood, and do not often soar above a single story, show some strange juxtapositions of diverse interests. The Stock Exchange, around which an anxious throng presses to read the latest bulletin; the feed and flour store; the combined drug-store and news-room, and the dry-goods store, are huddled together in a line. Buffalo-robcs, buckskins, and strips of gaudily colored cloth, designed to please the eyes of the squaws and the settlers' wives, hang outside. Whole buildings are devoted to the sale of mining outfits, an important item in which is the six-shooter and the rifle. There is quite a lavish display, too, of meretricious finery, such as gilt jewelry, cosmetics, and perfumery, with which the vain little ranch-women endeavor to disguise themselves.

But the most striking thing is the procession on the sidewalk and in the street, which commingles the Asiatic, the African, the European, and that problematic interrogation-point which comes between, the Indian.

The Indians outnumber whites, blacks, and Mongolians put together in Montana Territory, the most numerous tribe being the Sioux, of whom there are 5,000; the Assiniboincs number 4,698; the Mountain Crows, 3,000; and these, with other tribes less numerous, make a red population of 22,786. In times of peace they flock into Helena and other towns, emulating the worst of the whites, and contributing, in their varicolored blankets, feathery head-dresses, and vermilion-besmeared faces, to the picturesqueness of the street.

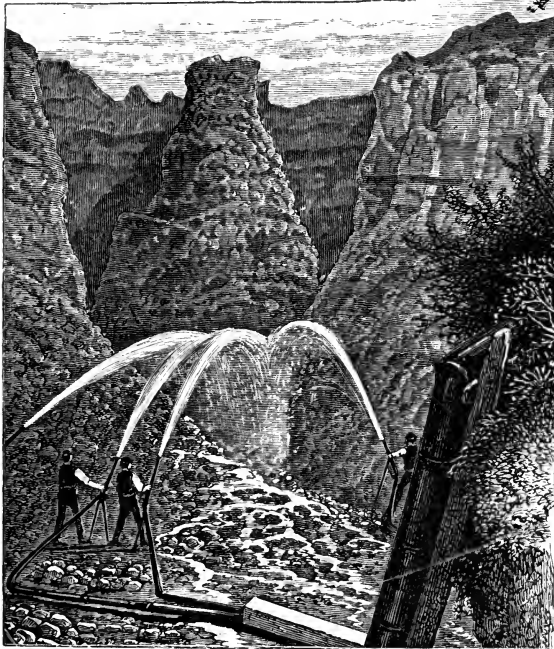
John Chinaman is also multitudinous, and plays many

parts, his chief occupations being washing and mining. He is so attentive to duty, so reserved in manners, and so neat in dress, that he wins our sympathies at once; but he will not bear investigation. Under his external smoothness he has much that is less innocent than his clean-shaven face; and, like the Indian, while he secretly hates the whites, he loves only one thing better than the ability to cheat them, and that is the ability to repeat their oaths. His loose-sleeved tunic of calico, ample-brimmed bamboo hat, closely fitting shoes, and the pigtail that is knotted with womanly care on the back of his head, are some of the particulars in which he differs from the Indian, whose costume is a grotesque make-up of the white man's dress with amendments of his own; but with the dress and disposition much of the difference ceases.

The herculean Cornishman, uncouth in manners and odd in dialect; the Manxman, from his insular island in the St. George's Channel; and the more familiar aliens, Germans and Irish, give Helena something of a cosmopolitan character: a glance out of one's window will often reveal a group of six different races, and our ears are constantly assailed with a jargon of tongues in which Dutch, English, Chinese, and Indian have the better in turns.

It may be wondered, as we have said, if the far West, and especially Montana, is really a credit to us. The sign of the saloon projects itself in the little street of Helena with astonishing frequency, and not in Helena only, but in most of the new settlements west of the one hundredth meridian. One is offended by a plethora of blasphemy, a fluency of oaths, so vehement and yet so unnecessary, that we ex-

pect to see the utterers crushed where they stand. Even children are accustomed to profanity, and abash us with their glibness in the use of it. Gambling and other vices are openly indulged in without the interference of the law, and the border ruffian swaggers through his course



Hydraulic Mining.

unmolested. No ; a superficial inspection of Montana is not encouraging, but a closer study shows another and a better view.

Wherever the town has survived the first excitement that has attracted settlers to it, and has made itself a perma-

nency, the tendency invariably has been toward law and order. The advance movement has not been very impetuous, though a spasm of indignation at some excess of crime has occasionally led to the quick retribution of Judge Lynch, such as has made noted the lone pine-tree, where so many culprits have been summarily executed; but with the acquisition of property by men who were hitherto adventurers have come the church, the newspaper, the school, and a desire for the peaceful security of a well-ordered municipality.

The Northern Pacific Railway is opening the Territory from the northeast, but the commonest conveyance for passengers is the stage-coach or the "buckboard." The merchandise is transported in wagons, a whole train of which, each drawn by from ten to twenty-six mules or oxen, is sometimes dispatched from one point to another, and is on the road days or weeks, or even months, according to the distance.

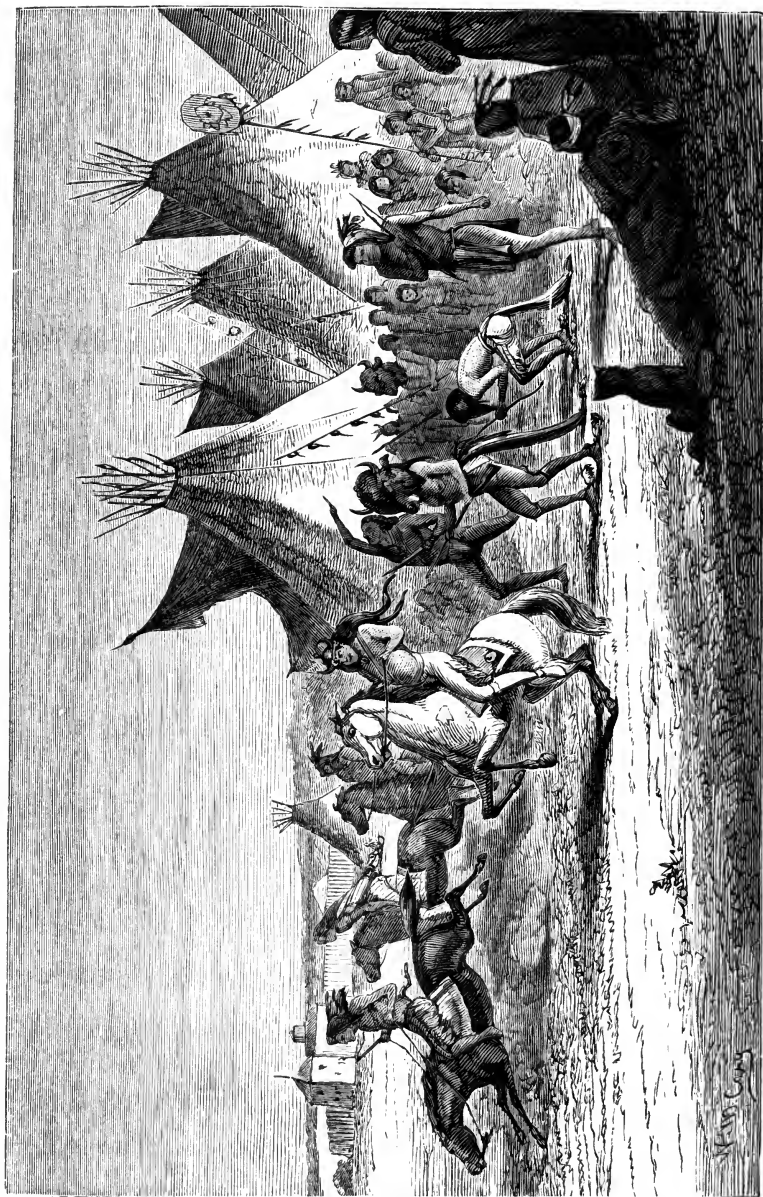
The road is so called by courtesy. It leads to somewhere, and that is its only recommendation: it is two parallel ruts, which scar the monotonous face of the plain and the rocky side of the mountain; its grades would appear quite impossible to Eastern eyes, and it verges on dizzy precipices, the sight of which is thrilling beyond measure. In the dry season its course is repeated in a long trail of hot dust that overhangs it, and in the wet season it is a slough of treacherous mud. It follows mountain-passes so steep that they seem impracticable for a riding animal, much more for a cumbersome vehicle, and in places its breadth is paved with boulders and sharp, projecting rocks that would shatter any conveyance less indestructible than a freighter's wagon.

The feats of the circus are not more wonderful than the journeys made over the mountains by the freighters. We see the wagons slowly ascending narrow terraces in cliffs thousands of feet high, their wheels touching the very brink of the dark abyss, and the animals straining every nerve and muscle; they roll and plunge again and again within an inch of destruction, and yet the drivers manage their teams with such admirable dexterity that the accidents which seem imminent very seldom occur. At the end of a ten or twelve hours' march a camp is made for the night by the side of some spring or brook, the distance from water to water being the usual length of the march; and, having fed and "corraled" their animals, the men make a comfortable supper, and stretch themselves under their wagons to sleep.

Placer mining and hydraulic mining are the same thing on a different scale. With a pick, a spade, and a dust-pan, his complete outfit, packed on the back of a tiny "burro" or donkey, the poorest miner can go into the mountains and "prospect" the rocks.

The auriferous "dirt," which he finds in his first operations, is put into tin or iron vessels called "dust-pans," over which a stream of water is allowed to flow; when it is completely saturated, it is stirred, and the bullion gradually settles to the bottom, the top dirt being poured off from time to time until nothing remains except the gold and silver and a fine black sand, which is afterward separated from the precious metals by a magnet.

The "rocker" or "cradle" is another machine of very simple design, used in winnowing the gold. It is literally a



An Indian Carnival.

cradle. The dirt is thrown in upon a screen at one end; water passes over it, and after setting the gold free, which falls to the bottom, carries the worthless residue away. The "long Tom" answers the same purposes. It is a box, or, as the miners call it, a "shoot-sluiice," into which the dirt is thrown, and carried by a stream of water to a screen at the end, where the gold settles to the bottom. The sluices are sometimes very long, and several of them are ranged side by side; what appear to be streams of gray mud are constantly flowing through them, and at night the strong rays of a locomotive's head-light are thrown upon them to prevent pilfering.

The deposits of auriferous dirt are occasionally several hundred feet deep, and the pick and shovel are substituted by a hose, which tapers from a diameter of eight inches at the butt to two inches at the orifice, and from which a jet of water is thrown upon the embankment of earth with such force that immense boulders and tons upon tons of *detritus* are displaced. The force of the stream is sufficient to kill a man; and a country thus torn and denuded by hydraulic mining has an exceedingly ragged and unprepossessing appearance.

When gathered in quantities, the ore is "treated" in the quartz-mills, and the result is delivered to the mints in bullion bricks. Sometimes the water used in mining has to be brought ten or twenty miles, and is conducted in long wooden flumes, which are also used in floating lumber from the mountains to the plains.

Nothing need be said of the Yellowstone Park which projects into the southern part of the Territory, for that region,

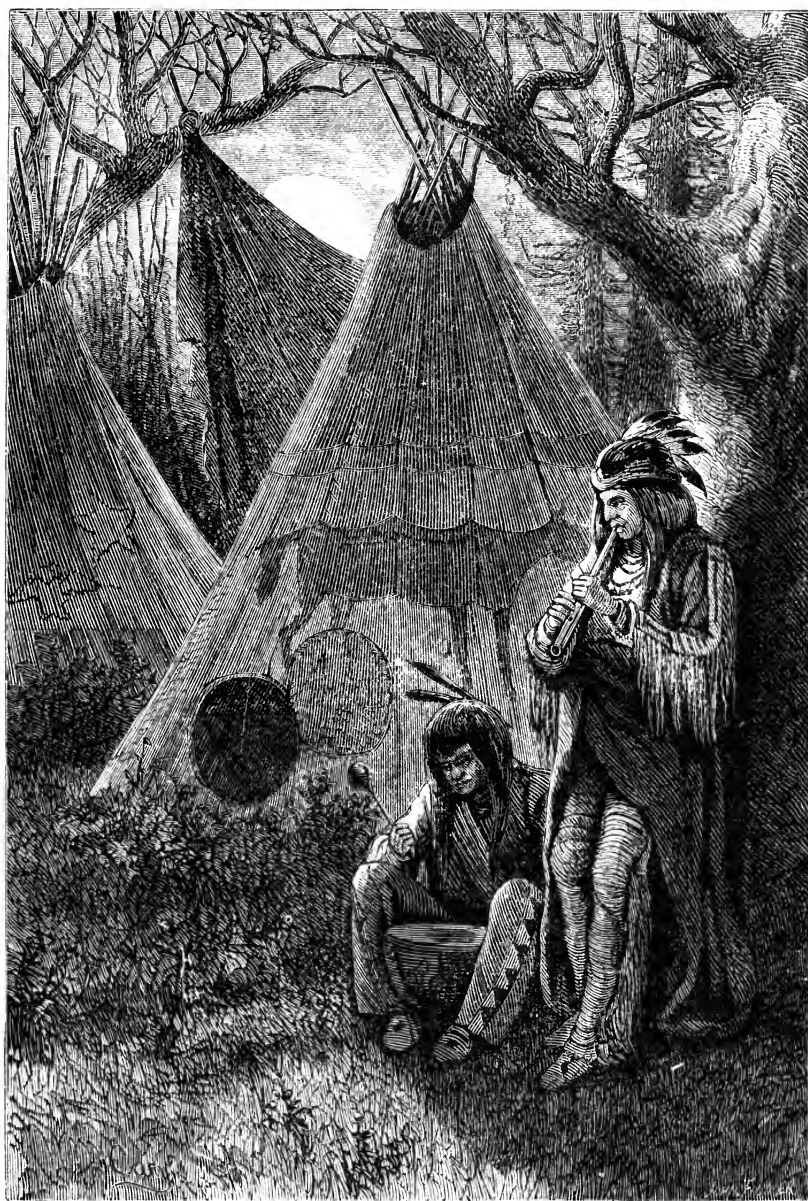
with its geysers, hot springs, and miraculous rocks, is well known already.

It was my good fortune while in Montana, however, to spend several days in an encampment of the Sioux, and a few words may be said concerning them. No mistake is more common than the supposition that the Indians are sad. In the presence of the whites they show their dignity by assuming a solemn manner, but among themselves they are naturally frolicsome, and much of their time is given to revelry.

The older chiefs gather round the camp-fire and unwearingly expatiate on their achievements in love and war, modesty not being an Indian failing; the younger men devote themselves to riding, shooting, wrestling, swimming, and racing on foot and horseback; the boys have a game resembling "tag." Even the squaws, relieved of their heavier duties, have time for chat and scandal.

All day long there is the sound of laughter, and in the evening the mirth becomes general. There are several kinds of dances, among which is the "sign-dance." The company is gathered together in an enlarged tent or *teepe*, and for some time a woman dances alone; she then takes up a man, leads him into the circle, and places him opposite her. She says to him in the sign-language: "Here I am, ready to be made love to; what do you think of me?" He answers by signs also, as his wit prompts, and every sally is received by the spectators with uproarious laughter and unbounded applause.

Colonel Dodge, the distinguished soldier and author, declares that "the German" was adopted from the Indians,



Indian Lovers.

though among them the leader of that dance is a woman, as is the case in all their social dances.

Another pretty dance is called the kissing-dance. It is begun by a woman who selects her partner, and when they have danced a little while they separate, each selecting another partner of the opposite sex. Thus the woman chooses another man and the man another woman, until there are several couples on the floor. At a signal all who have separated resume their original partners, and seat themselves on the ground, the men facing the women and kissing them. The point of the dance is that, while the leader can select the man she wishes to kiss, he and she together can select for partnership persons who may dislike each other. She can call out a love-sick boy and couple him with a woman old enough to be his grandmother; or she may call out a young man and, if she is mischievous, couple him with his pet aversion.

Such are the social dances, but there are many others from which the women are excluded—in celebration of victory, for the propitiation of their divinity, and in masquerade. I saw one of the latter, in which the chiefs were gayly and diversely dressed, bearing aloft their vari-colored insignia of strings and ribbons. Some were mounted on their wild mustangs and others were on foot. The ornaments worn were of many kinds—masks made of the head and beard of the buffalo-bull, plumes of the most brilliant feathers, and togas of stained and painted robes. Thus dressed they ran and leaped around camp like maniacs, putting themselves in postures which were now grotesque and then picturesque, one moment posing like buffoons and the next developing the grace of classic statues.



Snapping the Twig.

Love occupies a large part of the young men's time in these encampments. The opening scenes of a courtship are full of characteristic traits, and are the more poetical as there is no other language for love-making than that suggested by natural objects.

A story is told of a young man who fell in love with a girl of a friendly tribe. Before the nuptials were celebrated a war broke out between his people and hers, but he would not allow this to separate them. In the delays of an attack he fastened a piece of birch-bark covered with hieroglyphics to an arrow, and fired it to a spot where he knew she would be. The message fell into her hands, and on the night following the lovers escaped together.

The symbols are such as would be recognized on any valentine. The heart is foremost in the representations of affection; tenderness is prefigured by birds; courage by an eagle, and anger by caricatures of the buffalo's head.

On bright moonlight nights the lover serenades his mistress, the instrument used being a small drum or a reed, which sounds like a flute. I accidentally came upon a pair of love-sick swains, who sat near the tents of their beloved, one tooting on a melancholy pipe and the other tum-tumming on a cheese-box drum. I did not wait to see the result—for Indian etiquette requires an intruder under these circumstances to be blind and speechless—but the custom is, that if the girl wishes to encourage her suitor, she appears and allows him to seize her, while, if he is not to her fancy, she resists when he touches her, and he is obliged to immediately release her. The match is not complete with her surrender, however. He

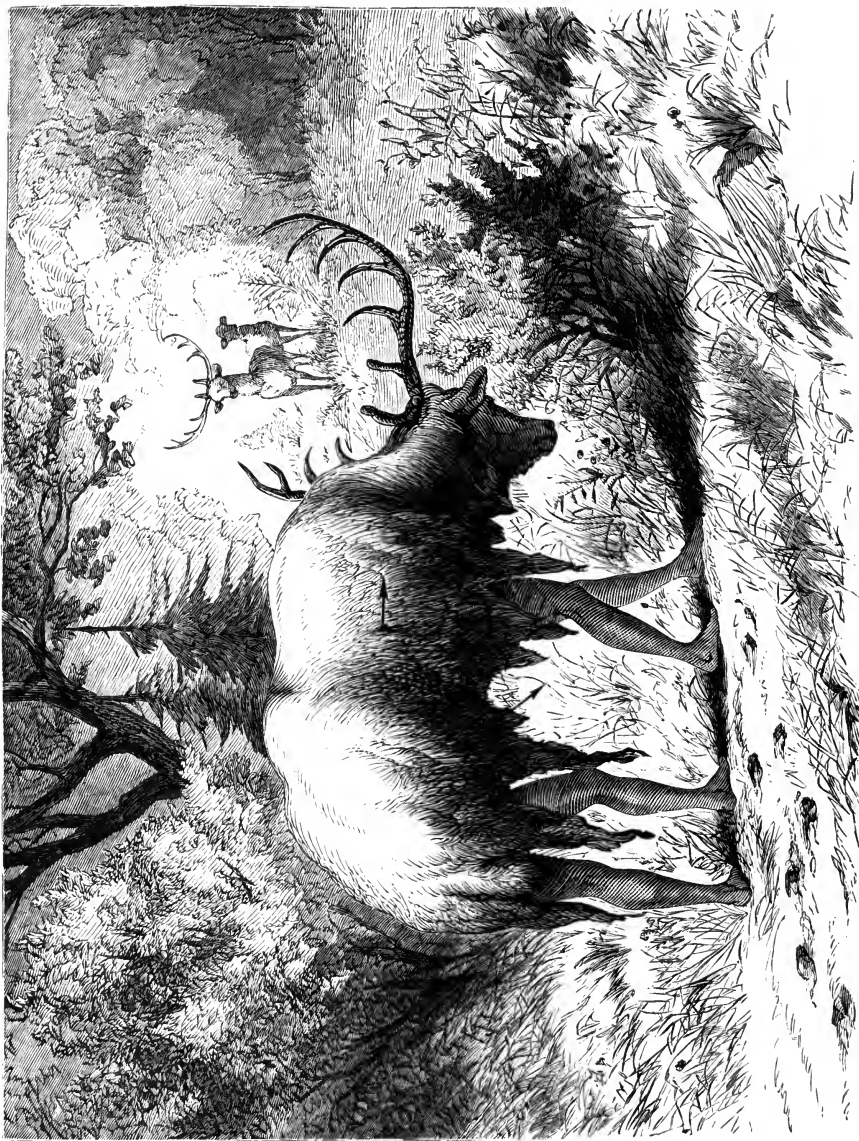
can not marry her until he has paid a large price for her to her father, and all Indian marriages have this pecuniary basis.

While I was in the Indian camp I had an opportunity to learn some of their methods of hunting, and to observe how intimate a knowledge they possess of the habits of the game they pursue. They depend for success on this knowledge as much as on their marksmanship, and a remarkable instance of it is seen in the way they hunt the elk by what they call "snapping the twig."

The elk is possessed of the keenest scent and the most exquisite hearing. It is also extremely cautious. To hunt the animal successfully when he is resting through the day, with every faculty wide awake, is, therefore, considered a proof of great skill.

The trail is sought by which he goes to his regular drinking-place, and when this has been discovered the hunters, one armed with a rifle and the other with a dry twig, calculate from the hoof-marks how near he is to them. So acute is the hearing of the elk that they have to approach the trail always from a right angle and with the greatest caution, never following the line of the trail itself, and they may have to approach in this circuitous way five or six times before they are finally rewarded by distinguishing the enormous antlers above the long grass and intervening brush. The Indian with the gun makes ready, and, as soon as he has prepared, his companion snaps his dry twig across his knee.

The elk springs upon his forelegs. The sound merely awakens his suspicions ; he does not bound away as he would do were it of another kind ; he speculates that it might have



Hunting the Elk in Masquerade.

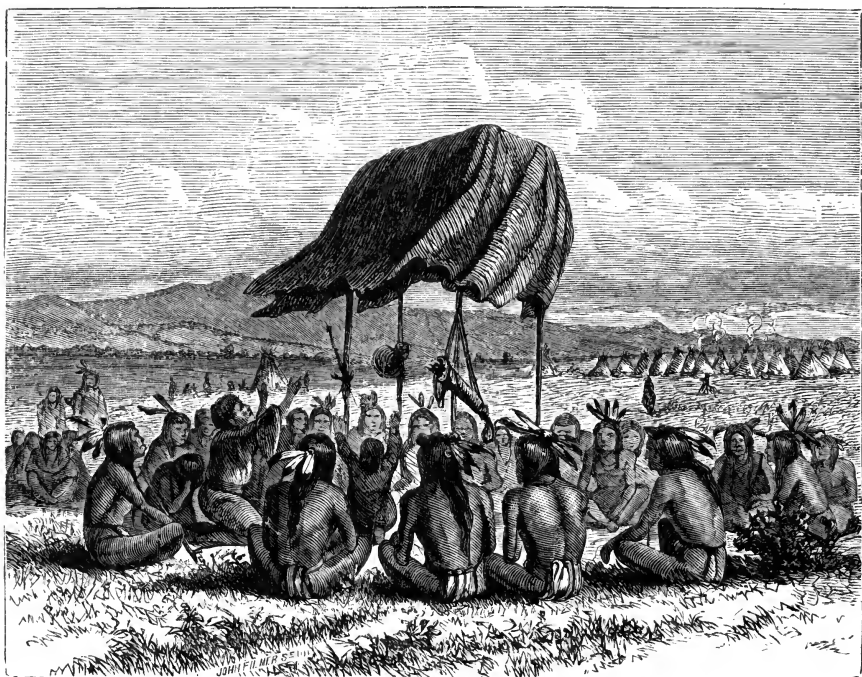
been made by another elk, or by the falling limb of a tree. Cogitating thus, and sitting on his haunches, he presents a splendid target, and falls instantly a victim to his hesitation and the wily Indian.

The northern Indians have another method of hunting the elk. The skin of an elk is preserved with the head and horns attached. Two hunters pass this heavy, unwieldy mass over their shoulders, and thus equipped they make straight-way to some previously discovered feeding-place, where a drove is browsing. The imitation is perfect enough to deceive the animals, and the Indians move among them until they are well in their midst, when they use their arrows with rapidly fatal effect.

Various modes of burial prevail among different tribes of Indians, and various ideas exist as to the future life. Some Indians bury their dead in pits, mounds, and caves; some deposit them on scaffolds or on trees, in boxes, canoes, and baskets; others sink their dead in rivers and lakes, or cast them adrift in canoes; others embalm or mummify them; and others, again, practice cremation. The commonest mode is interment in the ground, but among the Sioux tree or scaffold burial prevails.

The moment a Sioux dies, his friends, instead of laying his body out as if it were inanimate clay, prepare it for the long journey to which it is destined in order to reach its final home. He must not go forth empty-handed; he must present a fine appearance when he arrives at the home of his fathers. If he was a warrior, he must take with him his insignia of rank and his trophies won in the chase and on the war-path.

When it is possible, the ambitious young men of the tribe start for the prairies the moment a warrior becomes past recovery, and kill a buffalo for its hide. The hide is brought home, and in due time the body is laid upon it with the gun of the dead Indian, a quiver full of arrows, and some choice



An Indian Burial.

food. It is then closed up with its contents, and in a few weeks the sun has dried it, and it is as hard as sheet-iron. The body is now erected on poles, and covered with a purple or scarlet shawl, to protect it from evil spirits; the poles themselves are hung with presents of food and trinkets. The

women of the man's family cut their hair close to their heads, as a sign of sorrow and mourning, and, forming circles in the background, strike their bosoms as an evidence of their despair, and weep genuine tears. Sometimes they even lacerate their bosoms with knives. The warriors group themselves im-



A Squaw at her Husband's Grave.

mediately under the scaffolding upon which the dead body is placed, and puncture the fleshy parts of their arms and thighs with a lance, that they may shed tears of blood, though their eyes weep not.

The mourning continues for an indefinite time, and widows

and mothers often travel long distances to visit the graves of their lost ones.

Reaching the sacred places, possibly after a long absence, they find that storm and sunshine have left little else than decaying bones. These relics are carefully gathered up. If it is a husband's remains, the widow addresses the vacant skull in terms of affection, and repeats to it long stories of the events that have happened since he died. If it is her child's, she takes the little skull in her hands and presses it to her bosom, and attempts to gratify it with delicate food. At the end of these unusual rites the precious relics are carefully packed in a bundle and taken to the tribe's new resting-place, where they are again buried.

CHAPTER XVI.

THE SIERRAS AND THEIR SILVER.

THE boys now left Ogden, and before them lay the great American Desert. They passed Promontory, where the Central Pacific Railway was united to the Union Pacific on May 10, 1869—1,085 miles west of Omaha; and on the following morning they were in Nevada, which is not inaccurately called the "Desert State." There are rivers and lakes in Nevada, but not one of them finds an outlet to the sea, or contributes a drop to any other stream hurrying to that great reservoir. The soil drinks up all the water it receives, and still it is unfertile and discouraging.

There is space and no atmosphere, soil and no verdure, mountains and no inspiration; the sky has no fleck in its glassy blue; the crusted land crumbles to dust under the feet, and nourishes no heartier growth than the artemisia.

Out of the vast, tawny plain rise a few broken ranges of mountains, which are only beautiful as they recede and take purples and blues from the sunlight. The earth is alkaline and fine, and is whirled up by the least wind in blinding dust. It seems to have been desolated by a fire which has left it red and crisp; the blight which oppresses it is indescribable.



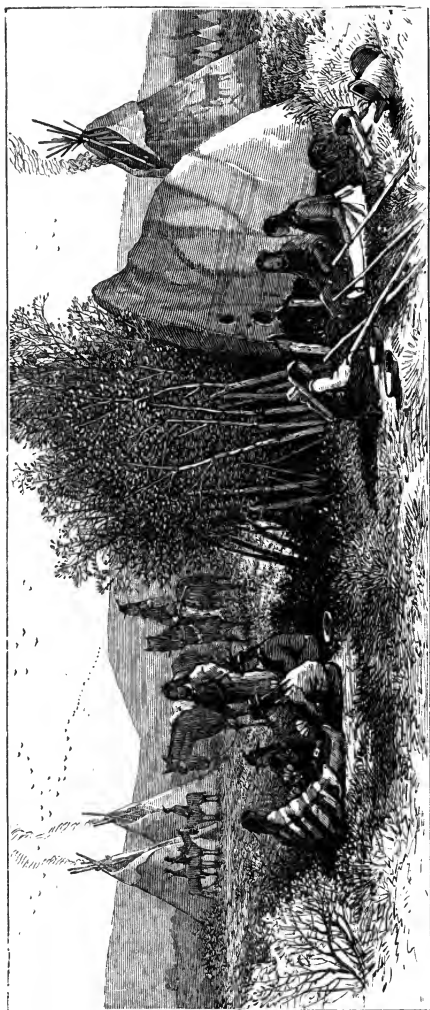
The Sierras.

The little towns along the railway do not enliven the scene. Too many of the buildings are devoted to liquor-selling, and too many of the inhabitants are loafers. One may well doubt whether such civilization is preferable to the barbarism of the Piute and Shoshone Indians, whose numerous encampments dot the plain.

The wigwams are frequently seen in groups, and they resemble dilapidated circular tents. Their construction is simple—a number of tree-poles being stacked together so as to form a hollow cone, and over this some buffalo-robies are secured, with the tails hanging to them. The cracks and holes made by wear are patched with pieces of cloth, rabbit-skins, or leather, and these repairs have usually been extensive. A fire is built in the middle of the tent, and the smoke finds an insufficient vent where the ends of the tree-poles meet at the tip of the



Great Salt Lake, from Promontory.



An Indian Camp in the Great American Desert.

cone of greasy buffalo-robcs. The chief's numerous family are stretched at full length, or lie crouching together on their haunches, and make a perfect picture of uncleanly indolence that is partly redeemed by their sunny amiability. Perhaps the squaw is fashioning a robe of rabbit-skins—if anybody is working, it is sure to be the unfortunate squaw—but, more likely, every individual in the tent is idle and half asleep, or playing cards and gambling.

The chief's family show the visitor all manner of attentions, and are particularly interested in his watch and trinkets; but the smoke from the smoldering fire, and fumes that

are worse, make a prolonged stay inside the wigwam quite unenjoyable.

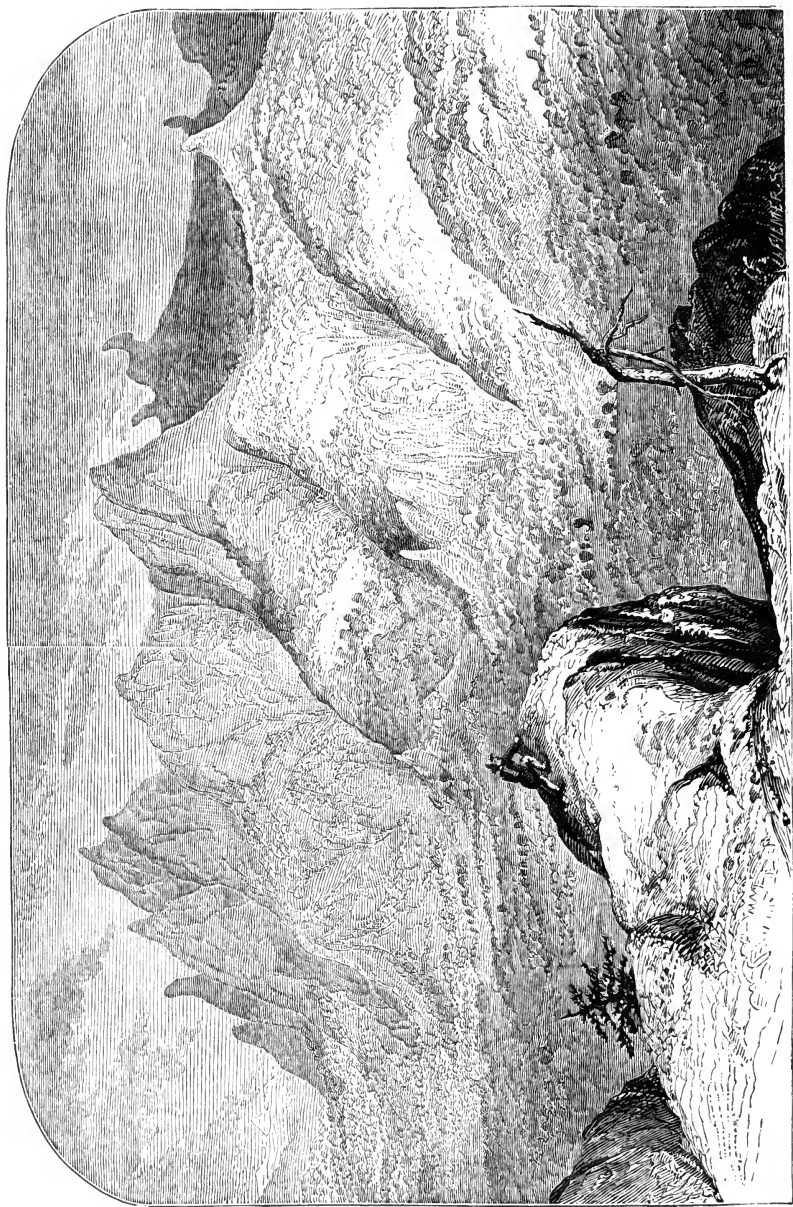
Farther westward, the Indian encampments are seen oftener; most of those east of Battle Mountain (a dismal little

station on the railway) being Shoshone, and those west of Battle Mountain Piute. They look miserable enough, but the circular tent of buffalo-hide is comfortable and aristocratic compared with the frail and wretched shanties, made of any and all sorts of material—boards, canvas, mud, or stones, belonging to the variety—which are visible among the mournful sage-bushes, with the purple mountains in the background. Sometimes an effort to cultivate a few vegetables has been made around them; but the parched soil makes successful agriculture an attainment to which the endurance and perseverance of few Indians are equal.

In the larger towns along the eastern slope of the Sierras, the Piutes are more than half civilized, and, as far as possible, imitate the fashions of the whites in dress, the women wearing showy cotton gowns, and the men brilliantly colored shirts, trousers, and hats. Besides growing vegetables, they accept small jobs from the towns-people, and in Virginia City a chief may sometimes be seen with a buck-saw, soliciting employment, although his earnings are usually spent in gambling, the most common and ineradicable of Indian vices.

The desert between Ogden and the Sierra Nevada is not like the plains between Omaha and the Rocky Mountains. The latter have no elevations in view, except occasional hog's-backs or low buttes, until the Rocky Mountains themselves are reached. But the desert is broken in all directions by ranges of high peaks, many of which are grotesquely formed. Once the railway strikes through them, and is overshadowed by the cliffs of the Humboldt range.

Hour after hour passes and no vegetation is seen. Toward



Granite Bluffs, Humboldt Range.

sundown on the day after leaving Ogden the boys saw an oasis, marking the course of the Humboldt River, which, though it is over five hundred miles long, and is the recipient of several confluent streams, vanishes in a sink.

The sinks of the desert are one of its most wonderful features. That of the Humboldt also receives the Carson River and the overflow of the Carson Lake, and, though there is no evidence of a subterranean outlet, the waters are mysteriously lost in it. North of the railway are the sinks of Pyramid and other lakes. The former takes its name from a rock which towers five hundred feet above it, and which is infested by rattlesnakes. When it was visited by some surveyors in 1867, a hiss seemed to come from every crevice, and the rattling was sharp and long-continued. Even those in the party who had been champion snake-exterminators, and had vanquished the reptiles on previous occasions, now found the combat beyond their powers, and hastily retreated from the rock.

The contrast could scarcely be sharper than it was between the country in which the boys went to sleep on the second night of their journey from Ogden and that in which they awoke next morning. The scorched mountains and the fallow plains were replaced by pine forests, the cold, brilliant surfaces of Alpine lakes, and the rosy and white tips of the peaks. At sunset the travelers had been in a region unutterably silent and desolate. When the curtain of night was lifted they were spinning around the foot-hills at an exhilarating altitude; the earth was densely green, the sky intensely blue, and the atmosphere electrical.

Five distinct periods divide the history of these mountains, says Mr. Clarence King: First, the slow gathering of marine sediment within the early ocean, during which incalculable ages were consumed; second, this level sea-floor came suddenly to be lifted into the air and crumpled into folds, through whose yawning fissures and ruptured axes poured wide zones of granite; third, the volcanic age of fire and steam; fourth, the glacial period, when the Sierras were one broad field of snow, with huge dragons of ice crawling down its slopes, and wearing their armor into the rocks; fifth, the present condition.

Tom and his friends left the train at Reno, and their plan now was to spend some time in the mountains around Lake Tahoe and to visit Virginia City, the famous mines of the Comstock lode, and the Sutro Tunnel. They decided to go to Virginia before resuming their camp-life, and they left Reno by the roundabout railway, which, in avoiding impassable mountains, travels fifty-two miles in order to reach a point only sixteen miles distant by a bee-line, and which has curves enough to describe a circle of three hundred and sixty degrees seventeen times. The curves are so sharp, indeed, that the engineer can sometimes see from his own locomotive the red light on the rear platform of the last car of his train.

The mountains hedge in Virginia on every side, and no pictures give a correct idea of that extraordinary little city. In photographs it appears to be at the foot of a mountain, but, in fact, it is built across the mountain's face, and the peak, that rises two thousand feet above it, also extends two thousand feet below it.



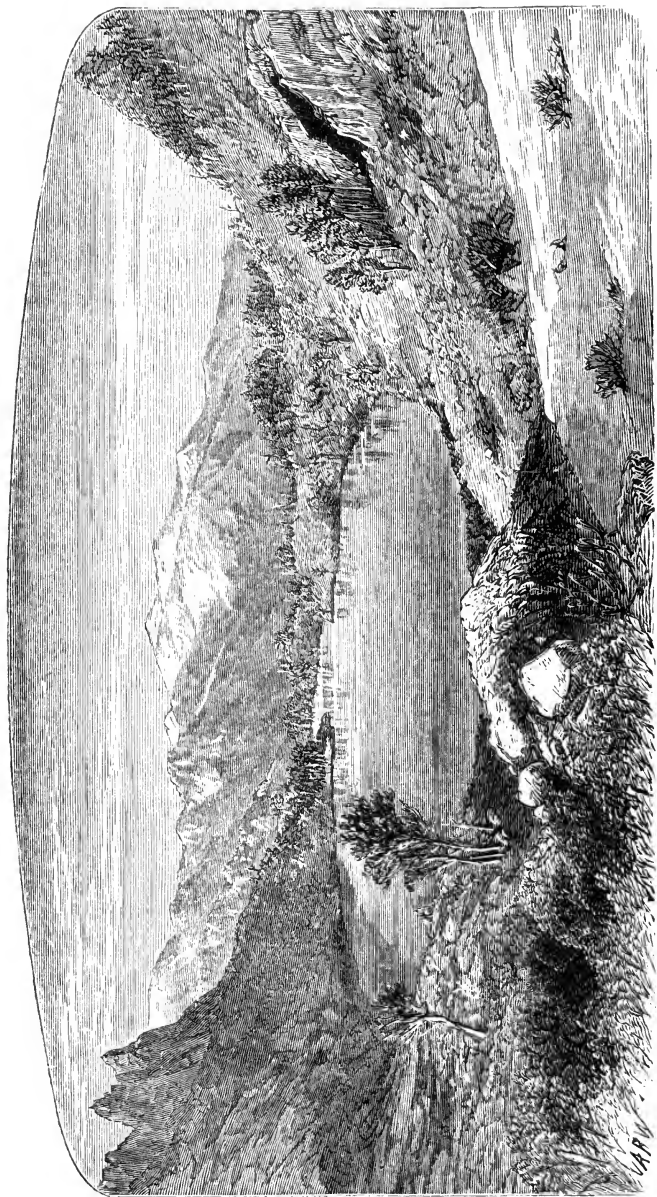
Pyramid Lake, Nevada.

The pitch of the ground is such that what is the first story of a house in front becomes the second or third story in the rear, and, looking eastward, northward, or southward, the eye meets an unvaried prospect of chain after chain of interlocked peaks. But what most surprises the stranger are the proportions of the constant, rushing crowd on C Street, the principal thoroughfare, and the cosmopolitan character of its elements. There is nothing provincial or shabby. The stores are well stocked, and the show-windows glitter with the attractiveness of their wares.

It is strange to find this busy city half-way up a mountain, with its magnificent garrison of peaks; but the city on the surface is less wonderful than that which lies below it, where men are delving unceasingly in labyrinthine tunnels for the treasure which is buried there.

When night has fallen on the visible town, the invisible town under-ground is glimmering with a thousand lights, just as it has been glimmering through all the summer days that have shone, and all the winter nights that have lowered, ever since the Comstock lode was first penetrated by a shaft.

There is no repose in that mysterious region, none of the endless changes and renewals of season that sweeten existence on the surface; no relapse of day into night, nor night into day; no summer, no winter, and no Sunday. The farthest journey possible on the surface could not take the traveler to a country half so miraculous as that which lies less than a mile below the parallels of familiar stores on C Street; it is as with a physiognomist, who, traveling in the interior of Africa and scanning the strangest human faces among the na-



A Mountain-Lake in the Sierra Nevada.

tives, would not see anything half so strange as the heart of his nearest neighbor, had he the power to probe the little depth of flesh that seals it and its innermost secrets.

Nearly one fourth of the whole population is hidden in the mines; and when the boys saw how crowded the superficial area was, and realized how many more streets and people were out of sight—how the apex of the mountain was the roof of a nineteen-story building which was constantly being extended farther into the earth—they were all prepared to agree with the proud citizen who assured them that Virginia City was “a pretty considerable place.”

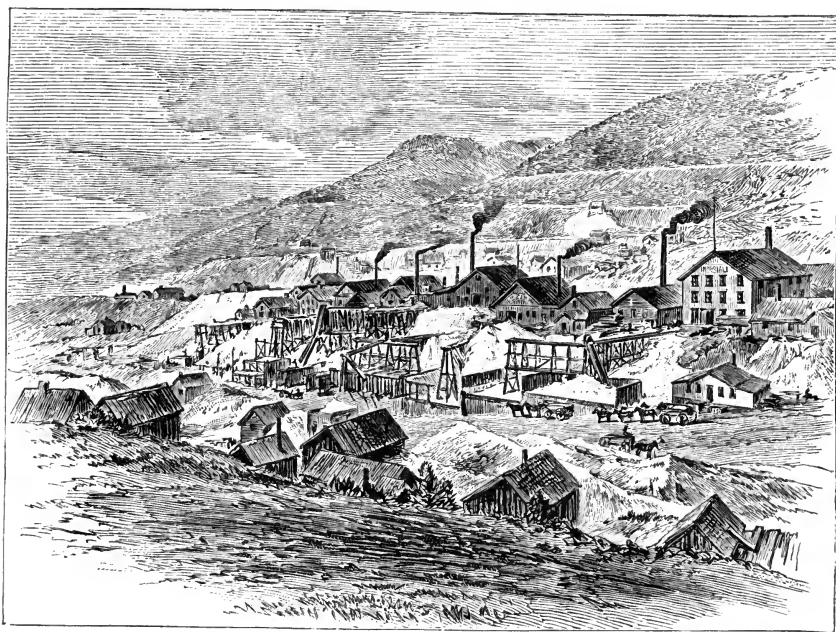
The story of the Comstock lode is like a romance. Gold was first discovered in Nevada by some Mormons in 1850. They were on their way to California, and on reaching the Carson River found the crossing of the Sierras impracticable, owing to snows. During the winter that followed they obtained small quantities of gold from the gravel of neighboring streams, but not enough to induce them to remain, and when spring set in they completed their journey to California.

There are always plenty of men in California who are willing to rush hither and thither at the beck of any new mining excitement, and, as soon as the Mormon discovery became known, a parcel of adventurers crossed the Sierras, and set up their sluice-boxes in the cañons around what is now Virginia.

It was gold that they were after, and they neither suspected the existence of silver nor knew it when they saw it. The bluish stuff which was so abundant, and which was silver-ore, interfered with their operations, and they cursed it

from morning till night. As they worked nearer and nearer to the lode, a lighter metal took the place of gold, and mystified them more than ever.

Among them, however, were two brothers, named Grosch, who were exceptions to the general ignorance. They were



Comstock Mines, Gold Hill.

young men of intelligence and education, who, in addition to their mining-tools, possessed some books on mineralogy and metallurgy, and some apparatus for assaying. It was understood that they had made "a big strike," and it is probable that they were the real discoverers of the Comstock lode; but one of them died from a pickaxe-wound in the foot, and

the other was frozen to death in the mountains. Their secret, if they had one, died with them.

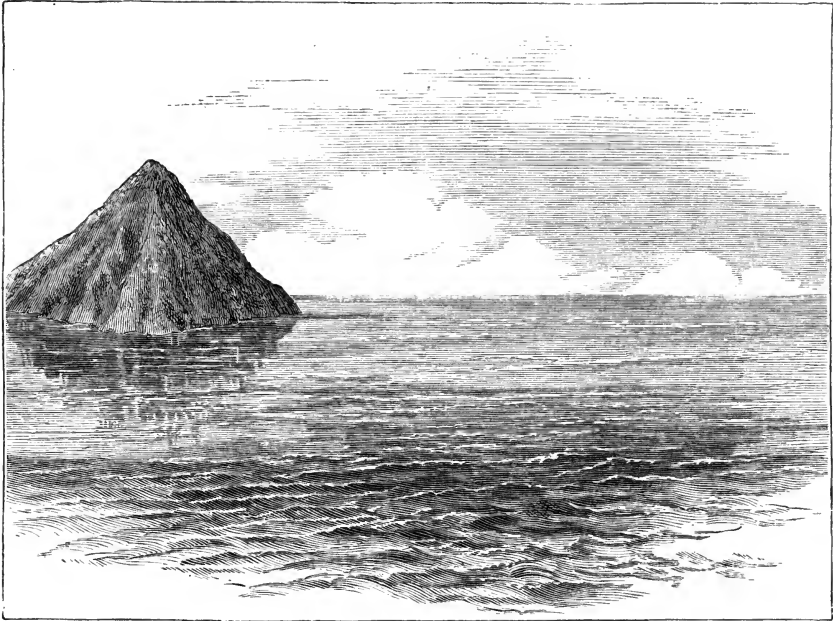
A Mexican also had some knowledge of a deep silver deposit, and endeavored to impart the information to others, exclaiming, as he pointed toward Mount Davidson, "*Mucho plata! mucho plata!*" which the Americans very freely translated as meaning, "Lots of money; gold somewhere in the mountains."

When at last, in the early part of 1859, the surface cropings of the lode were found, it was by a stupid accident: they were worked for the gold that they contained, and the silver was thrown out as being worthless. The first locators were Peter O'Riley and Patrick McLaughlin, who staked a claim on the present site of the Ophir mine; but, before they could secure it, Henry Comstock, a character familiar in the neighborhood as "Old Pancake," made his appearance, and demanded a share, for the reason that he owned the water-privileges.

This was the bit of brass that won an interest in the silver for Comstock, and by other effrontery of a similar kind he succeeded in attaching his name to the lode, which, as it became known, attracted thousands of miners to it, and has, since 1860, yielded more than one tenth of all the silver produced throughout the world.

Mount Davidson, the peak of the Sierra Nevada through which the vein runs, is an uplift of syenite, 7,827 feet above the level of the Pacific. Millions of years ago it probably stood out as an isolated cone in a prehistoric sea; then, as the waters subsided, it stood alone on the vast plains which

had formed the bottom of the sea. Thousands of years later a volcanic eruption surrounded it with the multitude of other peaks formed of greenstone or propylite, which bristle about



"An isolated cone in a prehistoric sea."

it like the spines of a cactus, and among which it looms pre-eminent; a second convulsion split the propylite country, and brought up a range of trachytic mountains. The trachyte was in a semi-fluid state, and so great was the pressure from beneath that the whole of the greenstone was uplifted, causing the formation of a fissure along the line of its contact with the syenite. This fissure, which was held open by the wedges of propylite that fell into it, was filled in the course of years, possibly by volatilization, with the gold and silver which now

yield such magnificent profits on the investments of the Bonanza mines.

The mountains that hedge in Mount Davidson are packed together as mountains are seldom packed elsewhere, and give evidence of volcanic action of an extent and of an intensity almost unparalleled. The basins are sterile and matted with sage-brush, and, wherever a pine or a fir has once existed, a stump is all that remains to commemorate the fact.

Four miles eastward, the Carson River makes a trail of arborescent verdure through one of these desolate valleys, and that faint line of green is like a glimpse of paradise to any one approaching it from one of the rugged cañons which lie between the chaotic-looking peaks and streak them with blue furrows.

Following the discovery of O'Riley and McLaughlin, a town named after "Old Virginia," one of the pioneers, appeared on the eastern slope of the mountain, a little above the surface outcroppings of the lode. The settlement began with a few tents and log-cabins.

In 1860 it had developed an International Hotel and a newspaper office. The hotel contained a bar-room, a dining-room, and about a dozen sleeping-rooms, and the charges were at the rate of seven or eight dollars a day. The newspaper establishment consisted of a shed and one room; the shed was occupied as a cooking, dining, and sleeping place by editors, reporters, and compositors, and the room answered the purposes of an editorial, typographical, and advertisement department combined.

Laws were necessary to control the many lawless advent-

urers who flocked into the city, and a code was adopted : it was brief, practical, and unincumbered with legal verbiage. Any municipality which finds its own voluminous statutes inadequate might try it to advantage. There was no prison, and the two punishments prescribed for all offenses were hanging and banishment.

All the mines are not open to inspection, but at the Ophir Tom and his friends were allowed to descend through the kindness of Mr. Comstock (no relation to "Old Pancake"), the foreman.

Before their journey under-ground they changed their ordinary clothes for others better adapted to subterranean exploration. They muffled themselves in flannel over-wear and under-wear ; broad-brimmed rubber hats sheltered their heads ; their feet were protected by stout brogans, and, with lanterns in their hands, they were conducted to the mouth of the principal shaft, which was in a large building whose rafters were trembling from the motion of the tremendous wheels that were working the pumps and the air-compressor. No steam is used below the surface, because it would increase the intense heat emitted by the mountain in the lower levels of the mine. The floor is set with railway-tracks, upon which are trains of small cars filled with ore and waste rock. These cars are sent up and down the mine in the "cages," or elevators, and along the levels, and the ore thus receives only one handling between the mine and the steam-cars that take it to the reduction-mills.

The cages do not differ essentially from the ordinary elevators used in hotels and other buildings, except that some

of them have three decks, or floors; and three cars, or three loads of passengers, can be brought up at a time. The appliances for safety include the latest and most approved inventions. Should the wire-woven hoisting-ropes ever break, several springs would be immediately released, and would grasp the grooves in which the elevator runs. The efficiency of this arrangement was put to a very practical test on one occasion by some mine-owners and superintendents, who stood in one of the cages while a laborer severed the hoisting-rope with a heavy axe: had the safety apparatus refused to work, the adventurers would have been precipitated to the bottom of the shaft; but, the moment the last strand of wire parted, the cage dropped a few inches, and was then securely caught by a firm set of iron teeth.

The knowledge of these things was soothing to the boys, as they stepped on to a cage and began to descend, and yet they could not wholly repress their nervousness as they smoothly sank farther away from the sweet security of daylight and open air. Their flickering lamps mystified rather than showed their surroundings. Once a light shot upward at one side of the cage, like a spark from a locomotive—it was another cage ascending; and at intervals they could discern the broad timbers of the shaft streaming with moisture and flashing back the rays of their lamps. A current of cold air played about them, and an occasional shower of water pattered on their rubber hats. No noise could be heard except that caused by the motion of the cage.

One hundred feet apart were the levels which had been worked out and abandoned, and in these the silence was

sepulchral. The sinuous tunnels, which had been bored in parallels and intersections through the lode, were closing under the weight of the mountain, and the massive beams that braced them seemed as ineffectual against the encroachments of the distending rock as a child's sand-castle is ineffectual against the tide.

Various events, all of a surprising character, and various thoughts suggested by the events, crowded upon the boys in the cage; but they were indistinct, and only developed themselves with clearness in the retrospect which opened when the adventurers returned to the surface and recovered their composure of mind.

Their first landing was at the fourteenth level, where they were just fourteen hundred feet below the top of the shaft; and their preconceived notions of a silver-mine were at once upset by the spaciousness of the station. Instead of alighting in a disorderly, narrow, suffocating hole in the mountain, as they had expected to do, they stepped from the cage into a lofty apartment, well lighted and well arranged in every other particular. The floor and the walls were wet, and the atmosphere had a peculiar humidity; the lights had a yellow flare, and were surrounded by an unusually broad halo; but these were the only things that reminded them of the depth at which they had arrived.

Similar stations, connected with the surface by telegraph, are established on each of the levels, and serve the purposes of railway-depots.

Here they saw more of the ore-cars, which were going into the labyrinthine passages of the mine empty and coming

out loaded with ore and waste rock, the resemblance between which is so great to an inexperienced person that it is necessary to put a distinguishing mark upon them, lest the men at the surface send the waste rock to the reduction-mills and the ore to the waste-dump. Both the ore and the waste are a pale gray in color, and in texture they are friable. What the wealthy companies deem as waste is by no means destitute of silver, however, but all that will not yield twenty-eight dollars per ton is thrown away, and in the case of Virginia City Whittington's fable is realized, many of the streets being built upon a soil which contains from ten to twenty-five dollars' worth of gold and silver in every ton.

Following Mr. Comstock, Tom, Bob, and Peter were soon in a maze of narrow passages, from which, had they been left to themselves, they could no more have escaped than found their way in a wheelbarrow to the north pole; and every one of these passages, whose windings are so bewildering and incoherent to a stranger, leads to some part of the Comstock lode. The walls are of silver, the floor is of silver, and the roof is of silver; the gritty particles that cling to the clothing and diffuse themselves in the air bear some proportion of silver, and a hand or a foot can not be put down without its coming in contact with a rich argentiferous surface. With all their curves and angles, not one of the passages goes outside the vein; whenever the wall of "country rock" that confines the vein on each side is reached, the work is turned in another direction.

These passages are technically called drifts, and have car-tracks running through them, their general direction being

the same as that of the lode—i. e., north and south. They are from six to eight feet in height, and from four to six feet in width. At intervals of about one hundred feet they are intersected by “cross-cuts,” extending east and west across the vein from one wall of “country rock” to the other, and the “cross-cuts” are intersected in turn by “cross-drifts.”

Small shafts, or “winzes,” are sunk from level to level, sometimes vertically and sometimes obliquely, which are used for communication and ventilation.

In the course of their wanderings the boys went down a “winze,” and were treated to a ride in a “giraffe,” the latter being a car used for hoisting ore through the “incline” of the mine. The vein dips to the eastward at an angle of from thirty-five to forty-five degrees; in the Ophir the angle is thirty-seven and a half degrees, and the “incline,” which is simply another kind of shaft, follows this dip.

The “giraffe” has low wheels in front and high wheels behind, so that its body is level in ascending and descending the “incline.” The boys watched it with interest as it smoothly traveled upward and automatically dumped its load into a chute; it seemed a remarkably business-like and intelligent contrivance; but when they were invited to take a ride in it, they remembered that it was only a machine after all, and were not quite sure that it would not dump them, as unceremoniously as it did its last load, into the chute.

It was as much as they could do to wedge themselves in behind, while Mr. Comstock sat in front. In response to a bell, the wire cables by which the “giraffe” is moved stretched and glided through the pulleys that hold them together, and

the passengers were gently drawn toward the head of the incline. The angle of the track looked much more acute then; they seemed to be going as nearly as possible in a perpendicular line, and as they approached the top their interest was accelerated every moment. What if the men at the bottom should take it into their heads to dump them? Miners are notorious for their practical jokes, and the possibility of their playing a trick upon them was suggested by Mr. Comstock himself. The spot where the track ends, and the "giraffe" relieves itself of its burden, was unpleasantly near; it grew nearer, and the boys clutched the sides of the car; it was nearer still, and here was the edge of the chute.

Comstock waved his lantern, and in that very breath the car stopped on the brink. There was not much more than a hair's breadth between those in it and the unsafe pit, seven or eight feet deep, into which the ore was emptied; and farther than this the adventure could not have been comfortably carried.

The streets of the mine are not as circuitous as they at first appear; in fact, generally speaking, they are as rectangular as a new Western city is on a map. But the boys dodged in and out repeatedly at Mr. Comstock's heels—meandering "drifts," "cross-cuts," and "cross-drifts"; insinuating their bodies in a state of awful compression through narrow "winzes," and almost splitting themselves in reaching across abysmal gulfs.

Knowing how many hundred men are constantly employed, the visitors expected to see large gangs thundering away at the rocks; but the miners are distributed in twos and threes

and sixes throughout the long avenues, and infrequently appear together in greater numbers. They work in shifts of eight hours each, and are paid four dollars in gold a day—a liberal enough arrangement—and yet one can only be touched with pity for them. Sunlight, space, and air seemed more precious to the boys after they had seen these men toiling in the murkiness of the Ophir.

The average temperature of the mine is equal to summer heat, and in some instances, as in an unventilated “cross-drift,” it attains to 120° Fahrenheit. One way of testing the mettle of new men and visitors is to expose them to the hottest places, and the boys were not spared. Although they were already streaming with perspiration, Mr. Comstock led them into a cavern where the heat of the walls was enough to blister the hands; the sensations of suffocation and dissolution were no longer mysteries to them. A man must be a salamander to stand it for continuous hours as some of the miners are compelled to. The visitors groped their way back to where a strong draught of air swept into the mine, and drank copiously from a barrel of water; their strength was almost exhausted.

“If you want to know how hot it is,” wrote a new hand to a friend in Chicago, “just crawl into your mother’s oven for about fifteen minutes on some baking-day, and you will have a pretty fair idea of it.”

The same writer says in a private letter: “You can not imagine what a greenhorn will suffer in getting used to the heat. Three or four days after he begins work his appetite fails; the *grub* has to be forced down, and in a week he can

scarcely eat anything. In about ten days sleep fails, and by that time he gets so dispirited, tired, and listless that he doesn't care whether he lives or dies. In about three weeks, more or less, the change comes; sleep and appetite are restored, and he doesn't care how much he sweats."

In such a temperature little clothing is needed, of course; a pair of coarse shoes, flannel drawers, and a muslin cap—the cap and shoes sometimes omitted—form the dress of most of the men at work.

The only air-shaft of importance on the lode is that of the Belcher mine, and in many situations air-shafts are not essential, connections between the working-shafts of the different mines answering for all the purposes of ventilation.

The implements used by the miners are pickaxes, spades, and Burleigh drills, the latter being vehement little machines with terrible penetrativeness employed in making holes for the blasting-powder.

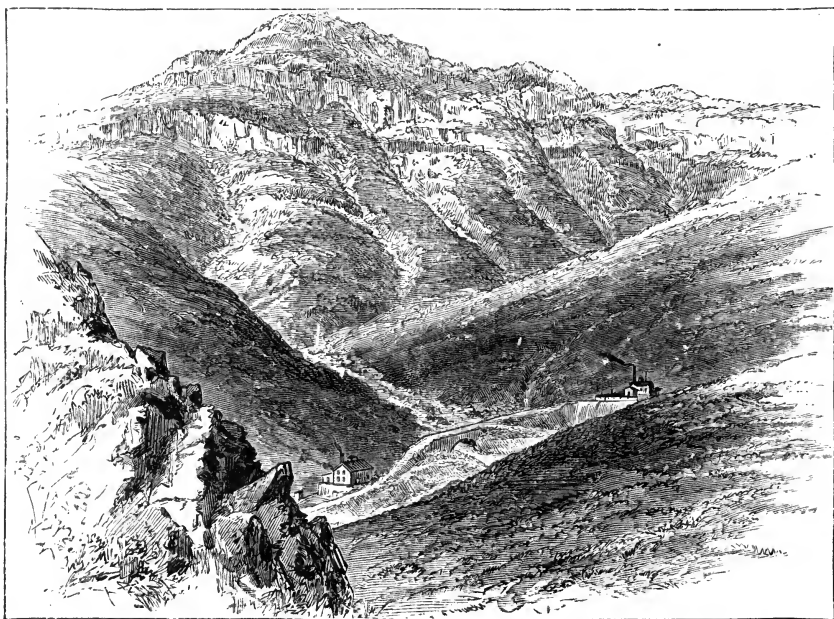
As Mr. Comstock and his companions were threading a dark passage in the Ophir, four sharp little rats followed their motions from a ledge of ore, and, instead of vanishing as they approached, held their ground without manifesting a shade of fear. Rats are numerous in the mines, and are so encouraged by the miners that some of them will take food from the hand, and allow themselves to be petted. But the smallest animals are dangerous in a mine, as in attempting to leap across the shaft they occasionally fall and hurt the men in the lower levels by striking them upon the head; and, incredible as it may appear, a dog actually killed two men by falling upon them at the bottom of the shaft some time ago.

On their return journey to daylight the boys took the cage at the seventeen-hundred-foot level, and were literally *flushed* to the surface. They stepped on to the cage; a cold wind swept down upon them; the sides of the shafts appeared as four black streaks; and, as they gasped for breath, they were on the firm upper crust of earth again. Mr. Comstock then explained to them that the signal given had not indicated to the engineer that any one was on board the cage; hence a degree of speed well calculated to make our young adventurers appreciate the feelings of Jules Verne's travelers to the moon.

While they were in Virginia the boys visited the famous tunnel which was projected by Adolph Sutro, to tap the mines. A glance at the situation of the city will explain the utility of this great piece of engineering.

The railway, to which reference has already been made, that carries all the wealth to and from the outer world, is like a great snake unfolding itself. To say that it is winding does not adequately express its miraculous sinuosity; it dodges in and out and round by a bewildering multiplicity of curves, and plays a tantalizing game of hide-and-seek with its stations—now running within a stone's-throw of them, and then, to avoid an intervening chasm, branching out behind the mountains again, and deferring its arrival beyond all patience. When it attains its terminus it is in as difficult a spot as a railway was ever brought to. The hills around Virginia City cluster and press upon one another so closely that, standing upon C Street and looking eastward, we can not discover a valley worth mentioning.

The principal mines are two thousand feet below the surface, and, when he began, Mr. Sutro had in mind the fact that every ton of rock and every gallon of water had to be hoisted up from the bottom. His object was to construct a tunnel through which the water would pass from the mines into the Carson River without expense or trouble, and through which,



Shaft of Sutro Tunnel.

also, the ore could be conveyed to a convenient valley at little cost. In 1876 the tunnel had been drilled eighteen thousand feet, and it was then the longest in America.

The boys changed their clothing for suits of rubber such as they had worn in the Ophir, and then prepared, at Mr. Sutro's invitation, to visit the works at the head of the tunnel.

The entrance was before them—a dark blot on the face of the rock, supported by timbers one foot square and five feet apart. In the uncertain distance ahead a light danced like a will-o'-the-wisp, and presently a train of small iron cars, loaded with waste rock, rolled into daylight along the narrow track.

The car that took the boys in was now put upon the rails, and a very simple sort of conveyance it was—a board two feet high, four feet long, and two feet wide, secured to four wheels. Tom sat in the middle, while Peter and Bob sat behind, clasping each other round the waist for security. One of the engineers sat in front and drove for them, the means of locomotion being an intelligent little mule named Daddy.

“Now, Daddy!” cried Mr. Foreman, the engineer, and at these words the mule sprang forward and shook the torch fastened to his harness, dragging the car into the tunnel.

The mouth where daylight was grew rapidly smaller and smaller, until it was no larger than a pin's head, and the pin's head disappeared, leaving the boys in a region of eternal night, where all the seasons are the same. The torch hanging from the mule's head-gear was merely a contrast, and its beams penetrated so short a distance that the blackness seemed to be blacker for its existence. The passengers had a nervous feeling that they were about to crash against something solid, and, in fact, it was as much as they could do to hold on as the car struck the occasional pieces of rock on the track.

After they had passed shaft No. 1, the air became hotter, and a profuse sweat poured from them, besides which showers of lukewarm water fell upon them from the rocky roof,

and a tumultuous stream flooded the track, teaching them the value of their rubber boots. The water coming from the rocks was not always distributed in a shower, but occasionally spouted out in a vigorous jet. Gnomes were never greater aliens of earth's surface than the boys felt themselves to be as they plunged—and they seemed to plunge—deeper into the darkness and through the successive upheavals of trachyte, propylite, and andesite.

At shaft No. 2 they found a damp-looking man among some lamps—a hostage, he might have been, to some subterranean monarch—and, after half a dozen words with him, they left him in the loneliness and gloom, as secure a prisoner as a fly in amber.

More water, greater heat, and greatest mystery. It was about time that they saw the lights at the heading, and a speck of yellow soon appeared, and then another speck, and then another. They passed long trains of cars loaded with waste rock, near which some mules were standing, their eyes blind to the flashing lights, and their ears deaf to the thunderous sounds. One little fellow was stationed by an air-compressor, and listened to its cannon-like pulsations without a wince; another obeyed the brief orders of his driver, and dodged in and out among the cars with as clear an understanding of what was wanted as the man himself had. At last the boys could hear the muffled reverberations of laborers' voices, and see the heading of solid rock, and their farther advance was obstructed by the Titanic drilling-machine, which filled the whole breadth of the tunnel.

Another attack was about to be made on the rock, another



Mining-Engineers in Consultation.

foot of open space made in the dense fastness of the mountain. The walls of the tunnel, the machines, and the men were all streaming with moisture, and many of the latter were stripped of all clothing except a pair of trousers. The candles flitted to and fro, and the naked, muscular breasts swelled with Herculean effort as the drills were prepared for the onslaught. The splash and drip of the water, the rattle of hammers, the grind of wheels, and the loudness of voices were bewildering. The spectators seemed as surely separated from the world as though the tunnel had been sealed from its inlet to the cavern that they were standing in.

The drilling-machine, which looked like a great iron cage, with the long steel drills projecting from its front, was pushed along the track until it touched the rock; and now a telegraphic signal was sent by the foreman to the surface for compressed air. In a few moments the thick rubber pipes on the floor began to distend, and the drilling-machine to quake from an internal commotion. The drills moved slowly in and out, beating against the rock like the pistons of a cylinder, and revolving at the same time. At first the sound resembled the beat of several steam-hammers, but as the air obtained full play, and the speed of the machine increased, it changed to the detonations of railway-wheels, and finally it crashed as the boys never heard anything else crash. They shouted at the top of their voices, screamed the sharpest note of which their lungs were capable, but their ears told them that they were dumb. The very earth and atmosphere seemed to quiver with fright at the terrific vehemence of sound, and the men, conscious of the futility of other means, communicated by signs.

Meanwhile millions of sparks flew out of the holes which the drills were grinding, and the air became full of minute particles of sand. Our friends had had enough. They were wet, shaken, and breathless, and, without waiting to see the



Premature Explosion.

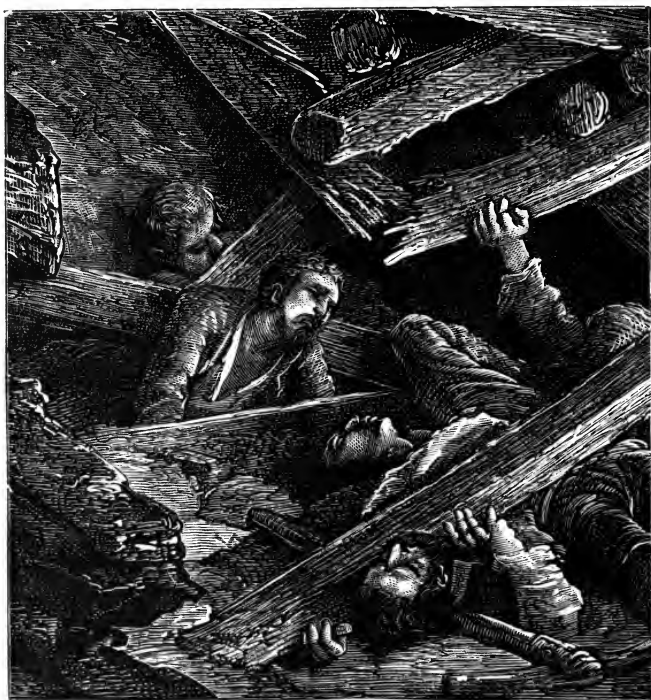
blasting which follows the drilling, they retired to a safe distance, where they could recover their voices and appreciate the pleasure of hearing them again.

The journey back to daylight was made without incident, and fresh air and dry clothes then seemed like positive luxuries.

In less than a month from that time the name of Mr.

Foreman, who had driven for them, was added to the long list of human sacrifices which all imposing achievements cost. A premature explosion of blasting-powder had blinded and maimed him. So it invariably is. Our engines, bridges, and tunnels, are all baptized in blood, and dedicated with the history of a calamity hanging from them.

The mines are indeed full of perils, and one of the most awful is the collapse of the timbering, that sometimes falls in under the weight of the honey-combed rock from which the ore has been extracted.



Collapse of the Timbering.

CHAPTER XVII.

SPORT AND ADVENTURE ON LAKE TAHOE.

THEIR acquaintance with the members of the Wheeler Expedition was again to be of great use to the boys, for they found another detachment of the surveyors in the neighborhood of Carson, the capital of Nevada, and obtained permission to travel with them in the mountains, which separate the latter State from California. It was thus unnecessary for our adventurers to incur the expense of a separate party. It was stipulated that they should simply provide their own riding animals and pay for their share of the frugal explorers' mess, an arrangement which made their journey much more economical than it would have been otherwise.

The route of the first day's march lay through one of the ravines in the mountains behind Carson, and over a zigzag road to the summit of the divide. The edge of the road was the edge of a precipice, which descended into the valley and swept upward into shelving cliffs. The sturdy pines shot out of the slope as straight and inflexible as rods of iron, and sickened the air with the pungency of their balsam; springs without number burst out of the rocks and clattered down in veins of white and silver; thickets of oaks and wil-

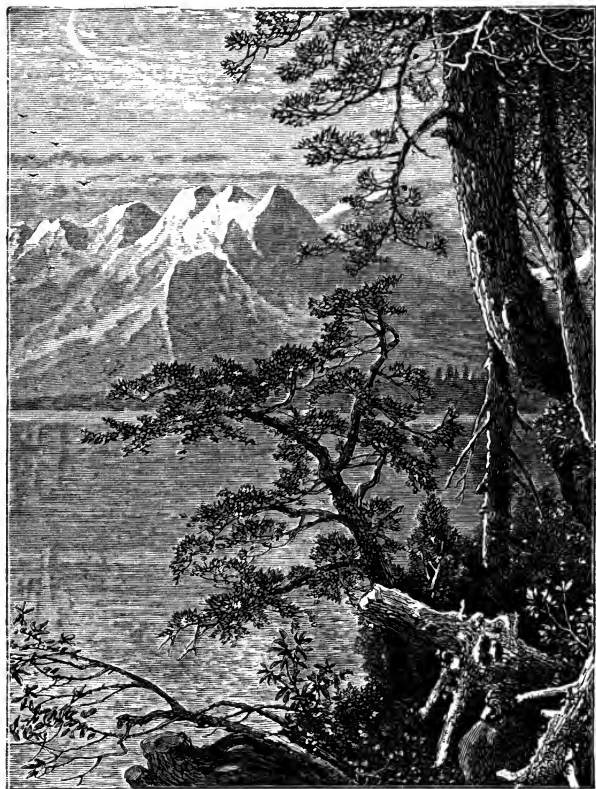
lows contrasted their paler emerald with the dark shade of the evergreens, and in greater contrast still was a bright, golden-green moss, which grew in belts and streaks on the ruddy brown bark of the pines.

At noon they reached the summit of the divide; and there before them, shining as though it had drained the snowy mountains and the dusky foot-hills encircling it of all the silver their veins contained, was the broad surface of Lake Tahoe, in the neighborhood of which they were to be for the next two months.

The maroon-colored desert was now behind them, and before them was a region surpassing, in many elements, the famous Rocky Mountains. A rapid descent through a verdurous cañon, whose walls were speared with a close array of stalwart pines, led them to the banks of the lake, and their first camp was made at Glenbrook, an orderly little settlement where most of the saw-milling is done.

A small steamboat circumnavigates the lake from Glenbrook, and the tourist who makes the trip deludes himself with the pleasant fancy that he has seen Tahoe. But the explorers, who were encamped upon the shore during the mellow closing of a summer, the hazy, subtle days of an autumn, and the beginning of a white winter, know that not in one day, nor in a week, nor in a season, can all the beauties of this crystalline expanse be explored. Snow brings one aspect with it when it spreads a veil of lace over the massive peaks; snow and mist together spiritualize the highest and heaviest ridges, and make them seem as mere shadows in the clouds; the ardent warmth of an evening works its own transforma-

tions; and even a wet day has a charm, and lends an expressiveness of its own to the landscape. But, when it has been seen under all these conditions, Tahoe has endless other attrac-



Lake Tahoe.

tions to reveal. It is fickle in its moods, but constant in its loveliness, and the nearer it is approached the lovelier it is.

Lieutenant Macomb and Tom made an excursion around the lake, a distance of about sixty miles. The water that near the shore is a transparent emerald, flecked with the white

of rounded granite boulders imbedded in yellow sand, changes in the deeper places to a blue—not of such an indigo cast as the Atlantic, but a quite unusual shade resembling the turquoise, and its motion is as heavy as oil, the low waves falling from the prow of the steamer like folds of silk, and subsiding in the wake without a ripple. There is a gloomy theory that the human body sinking in this serene depth is engulfed for ever. Marvelously clear as the water actually is, moreover, the boats floating upon it seeming to be suspended in the air as one looks down at them from the landings, and nothing but a thin sheet of pure glass seeming to intervene between the eye and the bottom—it has in the deeper places the apparent opacity of a solid, an illusion which is only displaced by the iridescence of a stray trout sporting at a depth of thirty feet or more.

The prettiest spot of all on the lake is in the southwestern corner, where Tallac Mountain is sharply lifted out of a luxuriant green plain—a level reach that is alternately smooth with meadow, and dense with groves of pine and aspen.

From the more distant points of the lake, Tallac is individualized among a multitude of other pinnacles by a broad cross of perpetual snow, that clings in transverse fissures across its eastern front, and by its unusually vivid outlines. As one approaches it along the southern curve of the lake, it grows in lucidity, and the dissolving haze of distance reveals a score or more of bright determinate colors which light up and variegate the sage-green tinge of the constituent basalt.

This basalt expresses itself in columns and slabs, and in what appears in the distance to be a frothy crust. It is re-

markably rugged, and overhangs the slopes with dark crags, and ribs them with serrated walls. A flashing patch of snow adjoins a tender shade of mauve, and a straggling growth of shrubbery opposes the warmth of its autumn crimson to the bright verdancy of a grass-plot.

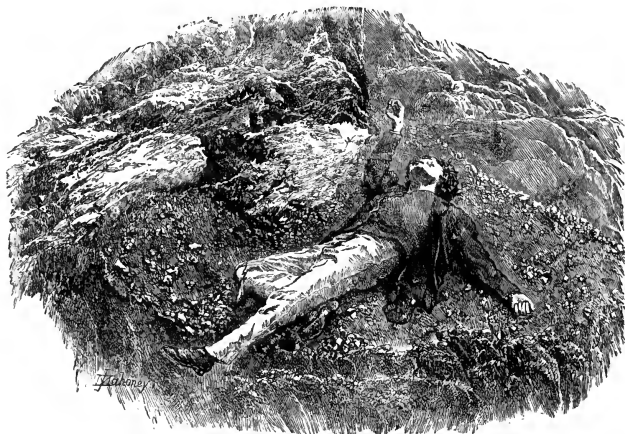
The foot of the mountain is in Lake Valley, and the valley is edged on the water-side by a hard, narrow beach of red pebbly sand, upon which the waves break in windy weather with a portentous, ocean-like roar. But in the intervening space, encompassed by foliage, is another basin of water, poetically called Fallen-Leaf Lake, which, in its purity, and in the picturesqueness of its surroundings, rivals Tahoe.

Though Tallac is beautiful on the most brazen and overcast days, there are conditions of the atmosphere, transient in themselves, but permanent in their effects on the imagination, which add to its charm. Tom will never forget it as it appeared to him one stormy afternoon while the camp lay almost under its shadow.

A mist lowered and dragged with it a curtain of the leaden gray that had gathered in every direction overhead, and, while it was yet diffuse, the filigree of snow on the dark rock looked like the figures in a lace. But, as its folds were drawn closer, every vestige of the massive basaltic peak seemed to dissolve in the pale monotone, and the granite boundary of the lake also disappeared, until all that Tom could see, looking out from the grove of tall pines, was an apparently limitless sea, dimpled by rain, that murmured low music on the pebbly beach.

He returned to his tent, and when he again looked out

the weather was clearing, and the sun streamed in broad copery shafts through the clefts in the western mountains. A heavy snow had fallen on Tallac, and, in contrast with this brilliant whiteness, some roseate puffs of cloud floated dreamily around it. It was an unusual combination of colors. The mountains in the north were chill and dark, their outlines metamorphosed by ragged strata of vapor, and those on the eastern side of the lake were purple, and the purple was changing to a ruddier hue as the sun sank farther down in the west. A rift in the clouds opened a sea of deep blue, environed by a shore of desolate gray, and floods of a strange yellow light, with a tinge of red in it, struck through the western cañons and threw a metallic reflection on the water.



"He rolled off the manzanita on to the rocks."

Tom had another reason than its beauty for remembering this lovely peak. He started up it one afternoon with Lieutenant Macomb, and had nearly reached the top, when a frag-

ment of the basalt up which he was climbing gave way in his hands from the mass. He fell backward to a depth of about twenty feet, when a bunch of manzanita-bushes broke his fall, which but for them would have been fatal. He rolled off the manzanita on to the rocks, and lay there stunned until his companions reached him; but, beyond the shock and a few bruises, he was not hurt.

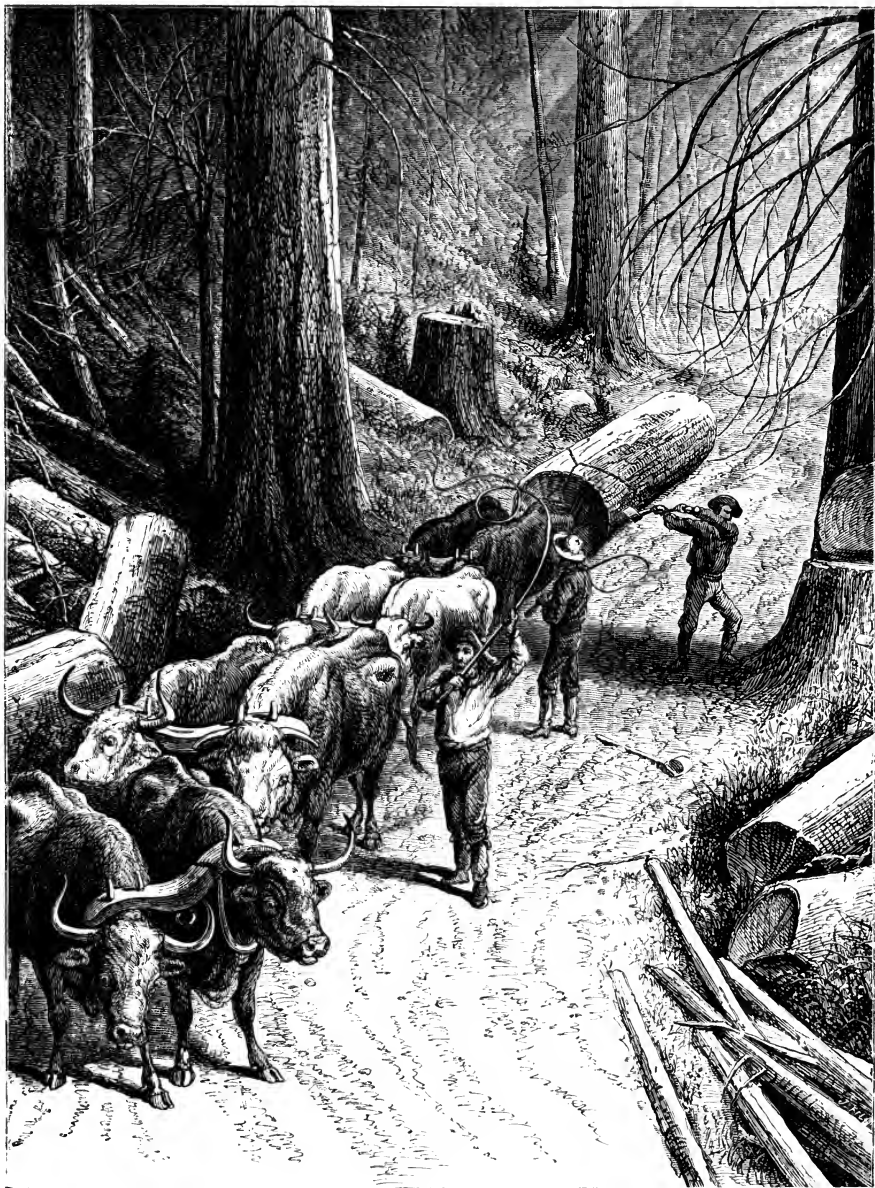
From the camp at Glenbrook Tom and his friends went with a side-party to explore the mountains eastward of the lake. Unluxurious as the main camp was, that of the side-party exceeded it in simplicity. A few tin cups, a small bag of flour, two or three pounds of coffee, a bottle of California pickles (an out-and-out luxury), and a few slices of bacon incrustated with salt, made up the outfit. The mess-table and camp-stool were left behind, and, had any one proposed to take a tent, he would have been laughed at.

The completeness of a side-party is its incompleteness, and the object sought is the greatest possible mobility. It is all very well to have tents and that sort of thing when traveling with the pack-train, which is never expected to make more than twenty-five or thirty miles a day. But the members of a detachment for mountain exploration must be able to move against every obstacle with the alacrity of a retreating Indian, starting before sunrise, hurrying from peak to peak, and not halting until after sundown.

From Glenbrook they struck across a country where the lumberman and the lumber interest have swept the forest, and left in place of the pines a far-reaching litter of broken limbs and withered leaves. Occasionally a sear old shaft reared

itself in a mosaic of stumps, and there was a world of pathos in its isolation and decay. A cluster of pines, firs, and spruce had also been left standing in out-of-the-way places, and a cathedral-like stillness and gloom was in their shadows, but the brevity of their life was forecast by the saw-mill and the flume, which were being brought nearer to them almost every day. Where the flume was not used, the party met trains of pack-mules heavily laden with logs, and they did not travel a mile without finding the cabin of a lumberman, or passing a wagon-team freighted with freshly felled trees.

The lieutenant led the cavalcade, divested of every garment that could indicate his rank or regiment, his picturesque blue and red artillery uniform substituted by a *sombrero* hat, a gray-flannel shirt, corduroy breeches, boots reaching above the knee, and jingling Mexican spurs. Abreast of him rode the three boys, their outfits reduced to felt hats, flannel shirts, and moleskin trousers. Bob carried a well-filled cartridge-belt around his waist, and had a revolver in his holster, and a rifle balanced on the pommel of his saddle. Then came the topographer and his assistant, and following them was one packer and the camp cook, with an assortment of tin vessels strung around him. That cook was the object of the affectionate solicitude of all the camp, and his mutton-pies were delicious, but he did not equal Greene. In the rear of the procession were the pack-mules and the odometer-carriage, the latter being a wheel attached to shafts, used for measuring distances, which is sometimes mistaken by frontiersmen for a wagon that has fallen down a precipice. The three unfortunate hybrids were almost hidden under rolls of bed-



Lumbermen in the Sierras.

ding and boxes of rations and instruments which were piled upon their *apparajoes*. They were occasionally alarmed at each other's appearance, and no wonder. More of the packs than of the animals themselves was visible, the latter being manifest only in twelve pairs of legs and six pairs of wagging ears.

Camp was made for the night at Marlette's Wood ranch, the abode of about twenty lumbermen, whose axes and saws were busily employed from sunrise to sundown in felling the surrounding forest. Soon after six o'clock there was a clatter of horses approaching at a furious gallop, and a succession of loud, whooping cries that in an Indian country would have caused the hearers some uneasiness. It was only the lumbermen coming home from their work, however, and "you fellows" (a familiar designation applied to the surveyors and to all strangers in the far West) were invited to join them in their evening amusements.

The ranch consisted of five or six rude wooden cabins situated in the middle of a vile-smelling marsh, over which roamed a brood of chickens and a few contented pigs. All the refuse of the kitchen had been thrown out-of-doors and scattered indiscriminately over the ground. The stench was unendurable, and it was well for the health of the men that a pretty steady breeze from the mountains kept the pestilential air from accumulating. Supper was served in the largest cabin, and a most excellent repast it was, consisting of abundant beefsteak, roast beef, roast mutton, potatoes, hot bread, pickles, tea, and coffee.

Taking everything together, the sturdy lumbermen of the

Sierras fare very well. They are paid sixty dollars a month, and are boarded. Their hours are from daybreak to sunset. Sunday is a holiday. A fastidious critic might have found fault with the service of supper—the candles inserted in the spout of the vinegar-bottle, for instance, and the frequency with which the big, brown hands were thrust into the dishes. But ten hours of toil among the pines leaves an appetite that can not afford to be captious, and a fabulous quantity of food was quickly eaten.

After supper the horses were groomed, and the evening was filled out with euchre and fiddle-playing. The bunks were ranged along the walls as in the forecastle of a ship, and perched in these, or crowding round the stove, the men made a picturesque grouping. How much more picturesque the episodes in their lives had been, their guests could imagine from some of their narrations. One of them had been a stage-driver, and was droll and garrulous as men of his class nearly always are; others had been miners, stock-raisers, soldiers, or scouts.

On the third day the side-party returned to the main camp at Glenbrook, and, in starting, an incident occurred which illustrated some of the difficulties of travel with a pack-train.

Peter had barely mounted his mule when the brute, possessed of that inherent treachery which dissipates the faith of the fondest lover of animals in the breed, began to buck in the most violent fashion. Each leg became a rod of iron, and each motion a small earthquake. But Peter kept his seat, and punished the beast with his heavy Mexican spurs. He did not notice that the bucking had loosened the girth, how-

ever; the mule, unfortunately, did, and when that compound of vice and cunning had put his rider off guard by a seemingly subdued gait, he sprang forward, straightened his legs, bent his neck, and took three successive leaps in the air, landing on his hoofs as firmly as a rock.

Peter was bounced out of his seat, and the mule started off into the forest with a parting wave of his hind-legs, and a defiant toss of his head.

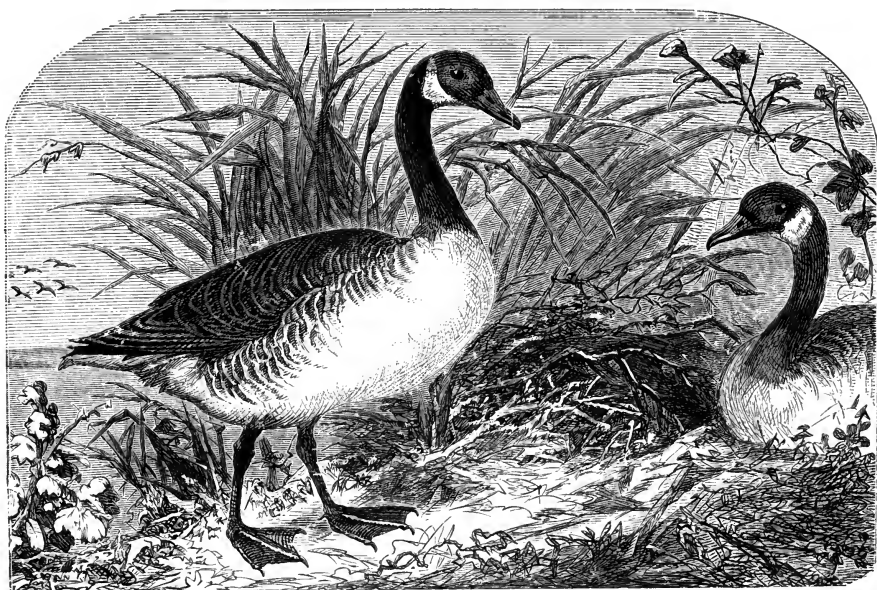
The plucky "special correspondent" jumped to his feet unhurt, and, borrowing Tom's animal, galloped off in pursuit of the enemy. He was away so long that his friends feared that he was lost; but late in the evening he triumphantly came into camp on the back of the runaway.

The main camp now moved from Glenbrook to Rowland's, over the California boundary-line, which crosses the lake. The road borders the lake all the way, and a more beautiful ride can not be imagined.

Nothing has been said yet about sport in the neighborhood of Lake Tahoe, of which enthusiastic accounts are given. A legend is extant that prodigious trout, weighing all the way from twenty to thirty pounds, are caught, and the surveyors met a man who had the temerity to declare that he himself had hooked one weighing twenty-eight pounds, a trolling-line being used, baited with minnow. The finest specimens they saw varied from three to five pounds, none exceeding the latter weight; and Dr. Henshaw, the zoölogist of the party, became a skeptic on the subject of the twenty-eight-pounders.

But aquatic birds were seen in extraordinary numbers.

The mess-table was supplied with teal, mallard, and canvas-back one day, with grouse and quail the next, with bittern and wild goose the next, and finally with wild turkey. Enormous flocks of grebes showed their wonderful abilities in diving, appearing at the edge of the shore with apparent confidence one moment, and then disappearing under the wa-

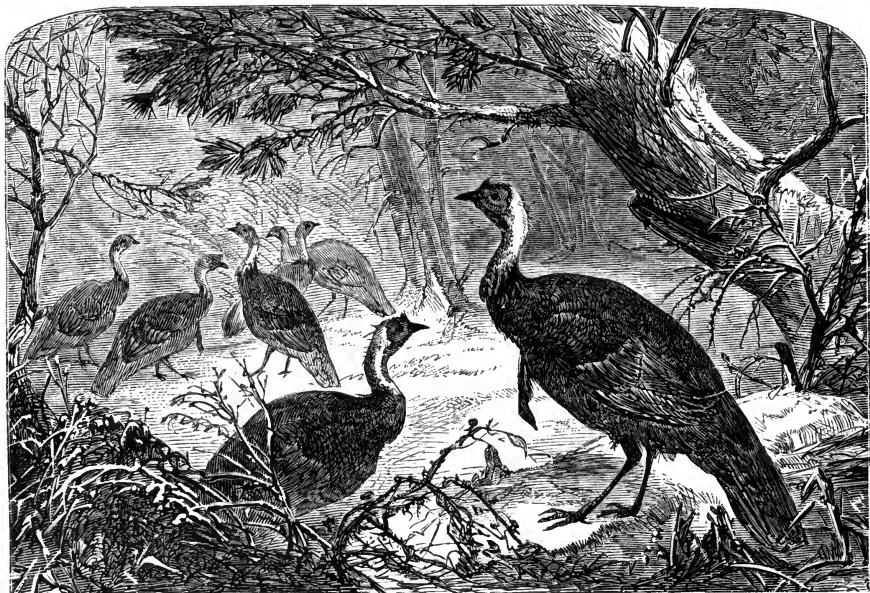


Wild Geese on Lake Tahoe.

ter, from which they emerged at some spot a long distance off where no one expected to see them. The wild geese, in their southward journey before the coming winter, showed the grace of their flight as they winged their way high up across the sky, changing positions from time to time like a well-drilled army. The turkeys were so incautious that they

became an easy prey, and even Peter, who was confessedly no marksman, bagged several.

These were glorious days on Lake Tahoe. The party followed all its many indentations through a mellow September and a crisp October, now building their camp-fire in a mountain-edged meadow; then on the edge of a cliff, crowd-



Wild Turkeys.

ed by lusty pines; then on one of the neighboring peaks, from which the panorama of the lake and its frame of evergreens was complete; and then on a strip of really golden sand set with genuine agates and carnelians.

But the lumbermen were everywhere despoiling this beautiful region, which, once clothed from head to foot in pines, is

being denuded to supply the Comstock mines with fuel for their hoisting apparatus and supports for their excavations. Penetrating a pine-forest to its heart, one finds an industrious gang of Vandals blasting trees out of beds upon which a tangle of roots seems to have fastened for eternity; and the grind of the saw-mills, the crash of axes, and the dull reverberations of the blast are always audible. Following one of the many devious wagon-roads—one out of use, for instance—we come to a great gap, where a deserted cabin and a curious litter of chips and shavings represent a forest sacrificed; following another road still in use, we discover the lumbermen at work carrying the havoc farther.

On one side of Lake Tahoe a steam-railway several miles long is used exclusively in the transportation of logs to the shore: the logs are towed in immense rafts across the water to Glenbrook, where they pass through the saw-mills; and thence another steam-railway, also used exclusively in the lumber service, extends to the summit of the divide. Down the eastern slope of the mountains, leading to the Carson River, flumes twenty and thirty miles long are carried over valleys and ravines on high trestle-work bridges, and the wood is floated through them over another stage of its journey toward the mines.

One morning, as Tom was riding through the Truckee Cañon, a great wave and a cloud of spray leaped from the river into the air some distance in front of him. He went a few paces farther, when, by the merest chance, his eye caught what was intended to be a sign—the lid of a baking-powder box tacked to a pine-stump, and inscribed with du-

bious letters, "Look out for the logs!" In which direction the logs were to be looked for was not intimated, and he paused a moment in uncertainty as to whether security depended on his standing still or advancing. Suddenly his mule shied round, and a tremendous pine-log, eighty or one



Another View of Lake Tahoe.

hundred feet long and about five feet in diameter, shot down the almost perpendicular wall of the cañon into the river, raising another wave and a cloud of spray.

This was to Tom a new phase of the lumber industry. A wide, strong, V-shaped trough, bound with ribbons of iron which had been worn to a silvery brightness by the friction, was laid down the precipice; and out of sight on the plateau above some men were felling the trees, which they conveyed to the river in the expeditious manner aforesaid.

After climbing Pyramid Peak and Freel's Peak, the explorers left Rowland's for Emerald Bay on the California shores of the lake.

Emerald Bay is like a Norwegian fiord; it is an indenture about a mile long in the western cliffs, and it is deep, still, and clear. At its head a cascade breaks over a ledge nearly a thousand feet high, and leaps down the rocky slope through a dense archway of pines, which opens occasionally and discloses the flashing white of the tumultuous water to persons standing on the edge of the bay below. Where the water forms a pool, it is now and then thrown back on its course, and the brilliant trout dodge to and fro at leisure. Then it strikes some stepping-stones of rocks, and it seems to be going both ways at once, or it subsides in a smooth, eddying corner. After many more tricks, all performed with a seeming desire to display, it takes another ledge, and repeats its previous antics with endless variations. Happy the trout in such an aquatic paradise!

The bay is secluded, and the brook's audience is not often large; but, should the spectator trace the cascade over the ledge, he would find its source on a high plateau, inclosed by snow-incrusted peaks.

The banks of the bay are almost impassable; they are

from seven hundred to a thousand feet high, and are meshed in a wondrously fine variety of evergreens and arborescent vegetation. Down the northern wall, however, there is a conspicuous streak of barrenness where a land-slide has torn away the thin coating of soil with every bit of verdure.

When the party left Rowland's they were assured that the trail ahead was an excellent one; but within three miles of camp they came upon a swamp, which to all appearances was a firm and fair meadow, and the first mule in the pack-train that put his hoof upon it went down to his nose in the black, oozy mud beneath the treacherous grass. Before the men could stop them, the others had too confidently followed the leader, and were wallowing in the slough, with the food, bedding, and instruments on their backs.

This was the beginning. By dint of much hauling and shouting, the men landed them on the farther side, and, after passing through a knot of pines, they struck the trail again. It wound up and down and round about, now shaping the letter Z, then describing a semicircle, verging on ledges where the foot-hold was only a few inches wide, and presenting obstacle after obstacle with incorrigible perversity. The slope of the mountain in which it formed a groove was steep and rocky, and covered with a dense growth of the manzanita and white-thorn bush, dense as nothing else is dense.

The manzanita stands about three feet high, and has red berries and red bark, and smooth, dark-green leaves with the waxy surface of ivy. The white-thorn is a smaller shrub, with pale, frosty leaves. It looks among the manzanita like a withered old man side by side with a young and strong



Donner Peak and Railway Snow-Sheds.

lad. But the two have one quality in common: they are as tough as steel and as lithe as a willow, and they not only hid the trail, but also twisted themselves about the men and tripped up the mules.

By-and-by the travelers turned a point in the shore, and Emerald Bay was before them. Sharp purple mountains crested with snow held it in, and forests of pines, oaks, willows, and aspens sprang out of the slopes to meet the water. The trail increased in difficulty, and the mules stumbled over the fallen logs and bowlders, and plunged into bogs again and again.

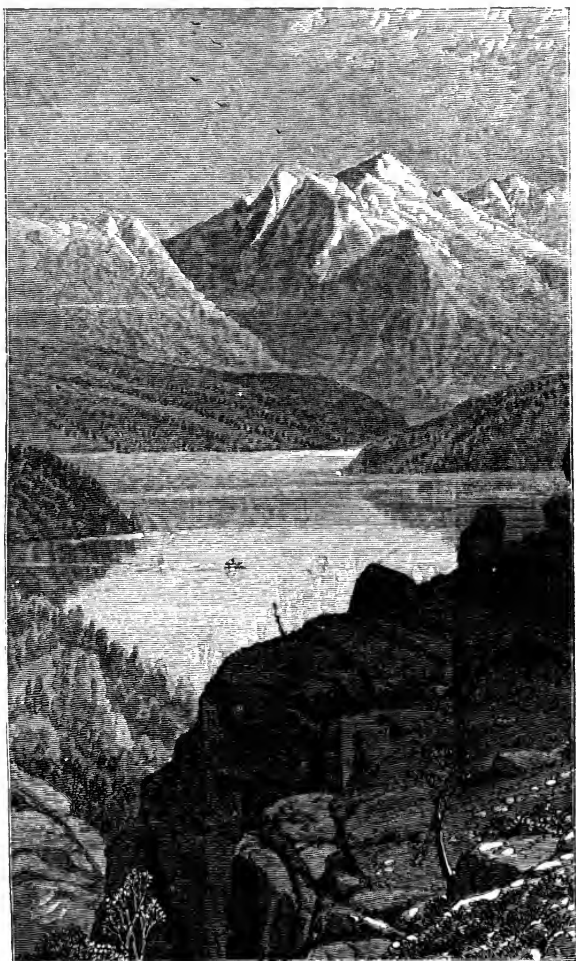
At last they had to take to the water; they could go no farther along the bank; the forest became denser than ever, and the mountain behind it steeper. A clearing in the forest at length invited them on to land again, and, after some more ups and downs, they reached a little summer-house in a corner of the bay, built by a wealthy Californian for a summer residence. The family had retreated to their winter quarters in San Francisco, and the only occupant remaining was an old seaman, Sailor Jack.

Never were men more touched by gratitude than the explorers were as they sat in the snug parlor before a blazing fire of pine. Their hearts went out through the rain and wind to that wealthy Californian, but their bodies preferred the cheerful warmth of the hearth. The ceaseless patter of the drops on the panes, and the roar of the wind and of the great water-fall that came tumbling down a cliff at one side of the house, were of no account to them.

It was a queer little house, and its occupant was queerer

still. From October to May, Jack seldom saw a human face, and the visitors made a break in his solitude that stirred him to do all the hospitable things in his power. He piled logs on the fire, made tea, and insisted on his guests sleeping in the house. He had been round and round the world in his seafaring career, and his stories of adventure amused them until late at night.

The little parlor was like the cabin of a ship. The wall over the mantelpiece was decorated with a string of florid chromos, illustrative, as Jack told them, of the "female beauties of all nations"; and over them was a pair of oars with a history. On a sideboard across the room was a large working model frigate, which



Donner Lake.

*Snow-Sheds.*

exhibited an infinite amount of patience and knowledge of sea usages in its construction.

"Captain Tom," as he was called, was Jack's predecessor, and these relics were his. He had many strange ideas about death, and a particular aversion to death by drowning. He always tied himself to his boat, so that, should he be cap-sized, his body, at least, might drift ashore and be buried on land. He dug a deep grave for himself on a rocky island in the middle of the bay, and covered it with a shelter of wood; but, though Tom had been dead for years, it was empty. He had gone sailing on the lake one day, and the oars over the mantel-piece, which had drifted ashore months later, were the only traces of him ever found.

Next morning the party continued on the trail, which went up a mountain behind the house at an angle so acute that six

of the ten mules rolled down in attempting to get up, and half the day was spent in traveling a mile.

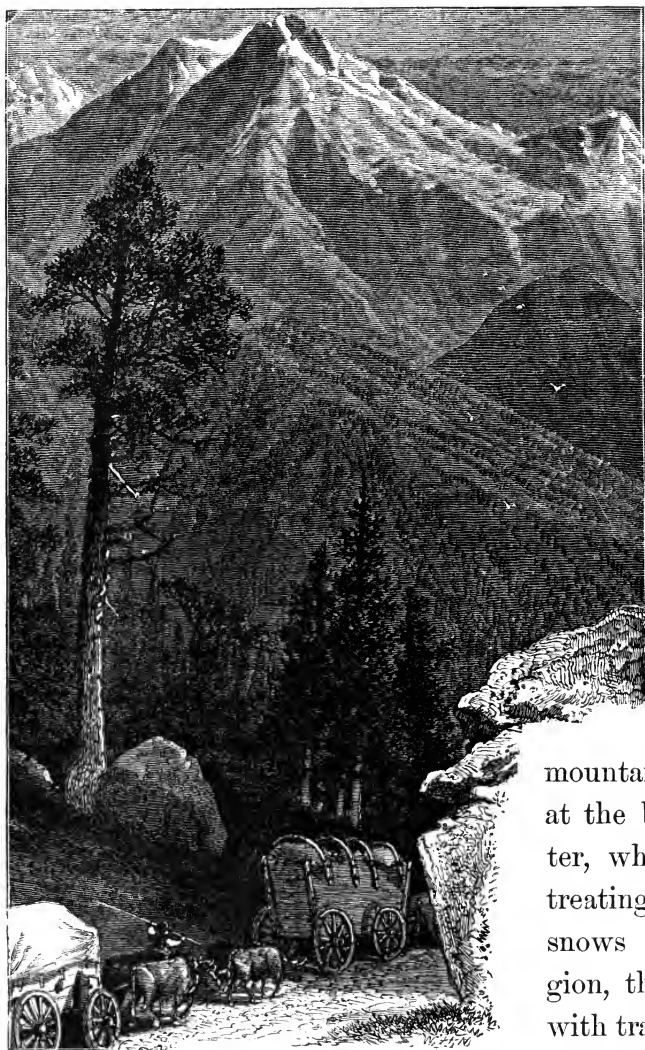
At night several of the mules were missing, having strayed off into a wilderness of swamp and forest. A search was made for them without success, and when dark came on the members of the camp found themselves without bedding or tents. To add to their discomfort, it began to rain, and a cold wind blew across the lake, throwing high, combing breakers against the rocks. They made themselves as comfortable as they could before a fire of hissing pine-logs, and before morning the missing animals came penitently into camp, with their packs under their bellies.

Peter dated one of his newspaper letters from this place, which he called Camp Hardluck.

The party now entered Truckee Cañon, through which they passed to the little town of Truckee, where they again met the Pacific Railway near its highest point in the Sierras. Snowy peaks and dense forests were visible on every side, and among them, about two miles from the town, lay Donner Lake, overshadowed by Donner Peak, which puts a white crown on before the maples in the East turn their color.

The trains crawl, snake-like, across the face of the peak, and for nearly twenty miles the track is housed in sheds of wood and iron, to protect it from the snow.

The old road, that wound among the mountains long before it was dreamed that a locomotive would ever mount these heights, is not wholly disused; and capacious wagons, loaded high with furniture, may be seen toiling along, with



Emigrants crossing the Sierras.

a herd of cattle following, and the children of the family running ahead and skirmishing among the bordering pines.

In spring, when the farmers and stock-raisers of the Sacramento Valley are taking their herds into the more luxuriant

mountain-pastures, and at the beginning of winter, when they are retreating before the early snows into a safer region, the road is lively with traffic, but not with such traffic as was known between the years 1850

and 1860. At frequent intervals the old taverns are found, their ample apartments vacant, their windows and doors out,

and their spacious emptiness reminding one of their former prosperity. The bar-room survives, in many cases, when all other parts of the establishment are closed, and the bar-keeper often has the whole house to himself.

The neighborhood of Donner Lake has a melancholy interest. Seventy-six emigrants, mostly from Illinois, reached the Sierras on October 31, 1846, a year in which the snow began about three weeks earlier than usual. They were caught by the storm in the Summit Valley, the basin of the lake, and could go no farther; they made preparations for the winter, but their food did not last, and they soon were confronted by the prospect of starvation.

A hero among them went out alone for relief to the village of Yerba Buena, now San Francisco, and returned with help. Thirty-six persons had died in the mean time.

When the relief-party started for San Francisco again, they were unable to take Mr. Donner, a farmer, who was very ill, and his wife insisted upon remaining with him. Keysbury, a German, was also left behind at his own request. In the following April, some men under General Kearny were sent out to bring the Donners and Keysbury over the mountains. When they entered the camp, only Keysbury was alive; Donner's dead body lay in a tent, where it had evidently been laid out by his wife, but Mrs. Donner could not be found. Keysbury was reclining in one of the cabins, calmly smoking a pipe, and looking into a pan on the fire which was filled with human flesh, some more of which stood in a bucket.

He no longer resembled nor acted like a human being, and

was hanged for the murder of Mrs. Donner on his own confession.

Bret Harte has made the adventures of the Donner camp the basis of some of the leading incidents in his novel, "Gabriel Conroy."



Moonlight in the Sierras.

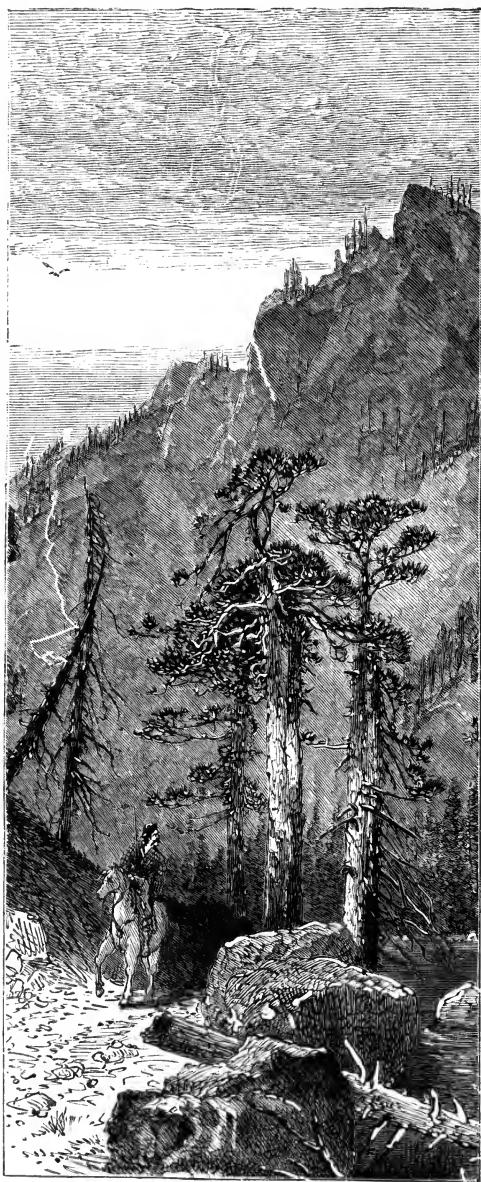
CHAPTER XVIII.

CAUGHT BY THE SNOW.

LIEUTENANT MACOMB'S object in visiting Truckee was to obtain fresh supplies for a further campaign; but the season was now far advanced, and most of the mountains were already white with robes that would not melt until the following spring. He wished to connect two or three peaks with some triangles already extended, and he again moved the party into Truckee Cañon.

One morning, a brown old ranchman came out of his cabin and announced to the camp that there would be snow before the next day. The members of the camp had barometers, thermometers, and all the instruments used by Old Probabilities in foretelling the weather; but they knew from experience that it was unnecessary to consult them, and that they might as well take the ranchman's word for law. Squirrels, spiders, and old ranchmen are the wisest of the weather-wise, and no signs of a storm are so sure as theirs—the spider ceasing to weave his gossamer across the roads and trails, the squirrels laying in an extra store of provisions, and the ranchman sniffing the air with the keen scent of a pointer.

The sunburned old man who spoke to them was as inno-

*Truckee Cañon.*

cent of scientific knowledge as a chipmunk is; but long life in the open air, and the observation of nature, had developed an instinct in him which, as in the animals, was more sensitive to the approach of a change than the most delicate instruments ever made by human hand.

They had been in snow already—the snow which never melts, but shines all summer, and drops into icicles along the tops of the rough mountains, whose clasp holds the lake within its bounds. They had played at snow-ball early in September; but they had so far escaped severe storms, such as the one now prophesied was likely to be.

There are more comfortable and complete shelters from bad weath-

er than small canvas tents, and less rheumatic beds than a blanket spread upon the frozen earth; there is more substantial food than a soldier's rations; but the tents, the blankets, and the rations were all that the explorers had to depend upon.

A few flakes of white fell, and vanished in the pine-fire that they built at night, and then a heavy rain set in, and continued to patter on their tents until morning, when they removed their camp from Lake Tahoe to Squaw Valley, which is a deep bay in the mountains, with an outlet leading into one of the cañons. Squaw Valley seemed to offer the best way of reaching the peak which the lieutenant wished to occupy.

The rain fell without abatement for thirty-six hours, and the tents swayed to and fro in the wind, threatening to collapse each moment, despite the strong ropes that guyed them to the pines under which they were pitched. The men were so wet and cold that the saucy-looking chipmunk, which occasionally peeped and winked at them from the hollow of a fir-tree, might have pitied them as they crowded nearer the fire, endeavoring to get warmth, and only getting smoke. For supper they had a slice of bacon, and bread, which the rain had reduced to an unsavory pulp, and they crept into their damp beds with longing thoughts of home.

Next morning, as Tom stretched out his arms against the tent, he felt that it was heavy, and heard it crackle; and when he looked outside, the whole country was transformed: the surrounding mountains and the valley—which had been blue, purple, and green—were covered with white; the great pines and firs resembled solid cones of snow; the pack-mules,

with tails turned to the wind and drooping heads, were the picture of misery, and there the camp was—snowed in. The storm might continue for days, even for weeks. When once the snow begins in the Sierras of California and Nevada, there is no telling when it will stop; it piles itself up in the valleys to a height of forty feet, and it shuts the country in a web that one can not help admiring for its velvety beauty, and dreading for its treacherous softness.

The farmers who have stock on the slopes of these mountains keep two farms—one in the Sacramento Valley, where the climate is deliciously mild, and their cattle can graze all winter, and the other in one of the mountain-valleys, which, when the snow melts in the spring, are clothed with a growth of very nutritious grass.

The surveyors had seen household after household turning westward during the previous weeks, in anticipation of the winter; and now, when it had come, there was not a human habitation, to their knowledge, within many miles of camp, though earlier in the season the country had been overrun with cattle, and overcast with the smoke of many ranches.

How the white flakes fell, and how they chilled the fingertips and toes! Great phantoms seemed to roll and wreath themselves in the air, and to fling out mysterious rings and festoons. The highest peaks disappeared, and the lower hills, seen through the gauzy veil of the snow, were like the figures in a lace, and as impalpable to look at as puffs of steam.

The surveyors who, under Lieutenant Wheeler, have made the most out-of-the-way parts of the far West as familiar as a New England county, have some pleasant experiences, to be

sure, and they deserve them; for it takes a great many pleasant ones to counterbalance the wretchedness of two or three days of storm. The men stood about the camp-fire disconsolately and silently, finding no relief in smoking or in conversation. In the morning the black cook called, "Breakfast!" and in the evening, "Supper!" They would have been happier had they been able to sit down to a respectable meal. Bacon and bread were the daintiest things, however, that the mess afforded.

Smarting and coughing from the pine-fire smoke, they tried to forget their sorrows in bed; tossing and shivering in their wet blankets, they slept a little, and awoke again to the miseries of the situation. When, on the next morning, they turned out, and found no promise of a clearing, their hopes fell to the zero of despair; and they decided that it was high time for them to make a change of base.

So the bedding, food, instruments, and tents were packed on the mules, and they went forth toward the Truckee Cañon. A strange and forlorn procession they made! Soldiers and scientific men working on the Western plains and mountains are not the elegantly uniformed creatures that the illustrated weeklies sometimes picture them as being. A dandy in camp is laughable and intolerable, and there was not a laughable or intolerable member in that party. Perhaps one figure in the rear of the pack-train might have raised a smile among strangers. It was Sergeant Ford, an intelligent young officer detailed from Camp Independence. The mule which he rode dragged the mysterious-looking one-wheeled odometer-carriage after it, and, as the mule stumbled in the drifts, the wheel

was lifted forward and swung from side to side in the most extraordinary fashion, and Ford was occasionally shot from his seat into a soft bed of snow.

As they crept along through the whirling storm with a shadowy chain of whited mountains encircling them, and a roof of gray over them, the wind that swept from the summits pierced them with its cold, and shook the snow off the pines and firs, throwing it into the air like a cloud of vapor. Their progress was slow; the mules floundered and slipped at every step, and, before they had gone far, the dark day began to edge on to the darker night, though they were still houseless and hungry. They could see only a little way ahead through the dense flakes which dashed upon them in a fury, and seemed determined to encompass them in their icy grip. Now and then a darker spot was visible in the gray, and their hopes rose as their imaginations traced the outlines of a house in it; but it turned out to be a clump of trees, or a massive detached rock, and they were again faced with the gloomy possibility of no shelter for the night.

This happened so often, that they gave no more attention to what was before them, and plodded on with downcast eyes; and it was thus that they had almost reached it before they discovered an isolated little cabin. The doors and windows and every opening had been securely nailed up, and the heavy cattle-tracks leading to the outlet of the valley showed that the ranchman had hastily retreated at the beginning of the storm. He had gone away, not dreaming that any one would appear in the neighborhood until the spring should bring greenness to the country again.

A nice point of law now presented itself to the explorers. It is not probable that felonious intent, or anything that a lawyer could interpret as felonious intent, ever entered the minds of the party before; but there they were—chilled to the bone, hungry, and completely unhappy; and there was the house, offering both shelter and a dry place on which they might make their beds. They hesitated a few moments—for burglary is a serious offense—and then they shook the snow from their shoulders, and forced an entrance, knowing that the generosity which grows as large in the Californian heart as Bartlett pears grow in the wonderful Californian soil, would have made them welcome, had it been present in the person of the owner.

No sooner had the door been broken open than every member of the party, including Tom, Bob, and Peter, made an investigation of the contents of the house, which confirmed the evidence of the cattle-tracks outside, that the occupants had left suddenly; and as each man made a discovery, he shouted out the nature of it to the others.

“Half a bottle of pickles!” cried Tom.

“A rib of beef!” announced Bob.

“Bottle of pain-killer!” called the lieutenant.

“Scented soap!” shouted the sergeant.

“Basket of potatoes!” again cried Tom, who had made a further discovery.

The most enterprising explorer was Peter, who, having added a great variety of articles to the miscellaneous collection made by the others, retired into a corner to eat some moldy corn-starch out of a rusty can, with a chip of wood.

They were not long in putting up the stove and lighting a glorious fire, and spreading their blankets on the floor. They were not long, either, in putting the cook in the kitchen, or slow in urging him in his preparations for supper; and though they had already eaten a whole basketful of potatoes, sliced with a pen-knife and roasted on the stove, it was astonishing how quickly the fine joint of beef discovered by Bob vanished when supper was ready.

A little way from the house was a large barn, in which they stabled their mules, and fed them with hay. A mule is a weather-hardy creature, that is supposed to be capable of enduring the severest exposure, and is not often treated to lodgings in a stable; and it was a treat, therefore, to see the poor animals comfortably quartered for once, and to hear them munching their abundant feed.

The storm continued throughout the next day, and in the evening, as the men sat around the camp-fire, Sergeant Ford, who had been out-of-doors, rushed into their midst, looking for a shot-gun.

In answer to their questions, he said, breathlessly :

“Turkey!” and disappeared again.

They were within three weeks of Thanksgiving, and the prospect of turkey was almost too much for them. They started for the door, but before they could reach it Ford had fired, and, as they put their heads into the snow, they saw him standing with the smoking gun in his hand, and watching a large white owl as it flew away into the night.

“Turkey?” they inquired, sympathetically.

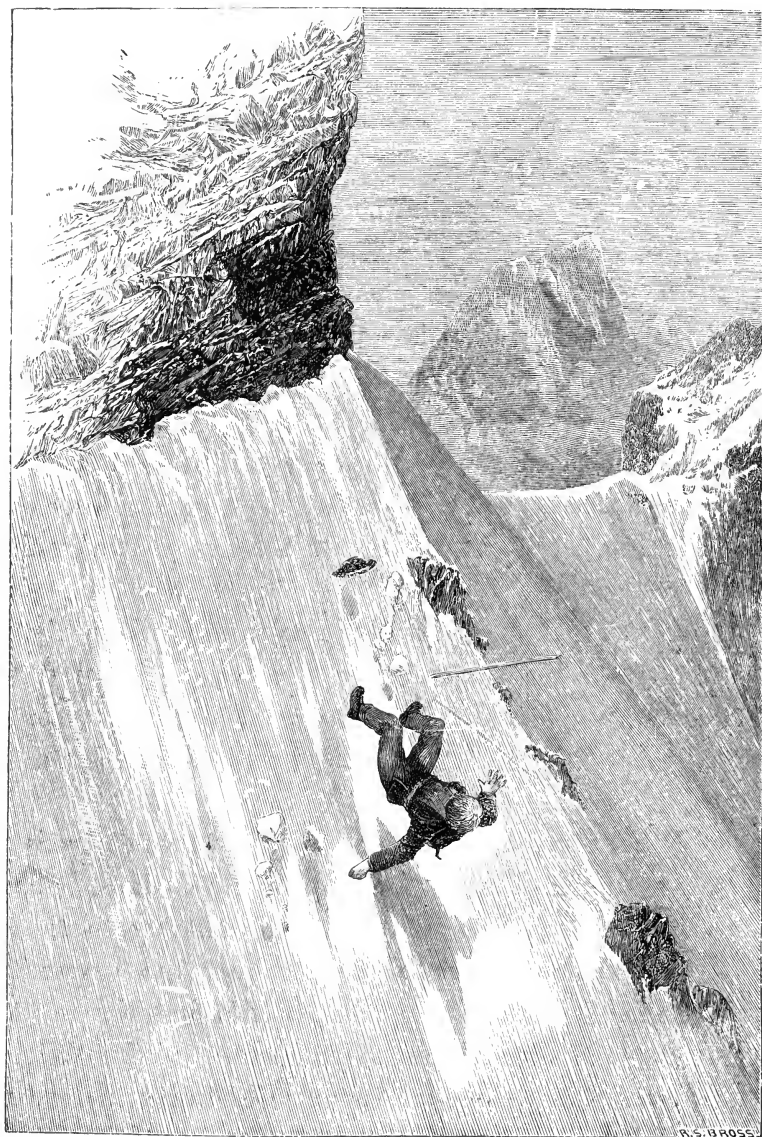
Ford simply shook his head, and soon went to bed.

The next morning was clear and cold, and Lieutenant Macomb started out to attempt one of the neighboring peaks, taking Bob and Peter with him, while in the afternoon Tom and Dr. Henshaw went in another direction, with a faint hope of finding some game.

The two latter separated soon after leaving the ranch, and Tom found himself following the trail of some deer up the side of one of the mountains. The air was so stimulating that he scarcely felt any fatigue, though he frequently fell into the snow-drifts, and slipped on the rocks which were covered with a glaze of ice. He was so absorbed in the pursuit that he noticed neither distance nor time, and he was high above the valley when he saw the prongs of an antlered head projecting beyond the farther side of a wedge-shaped cliff.

The cliff was shaped as nearly as possible like the bow of a steamer, and a very narrow ledge was grooved in it from one side to the other. Above the ledge the rocks were precipitous and bare; below it they were hidden by a steep embankment of snow.

Though the foot-hold which it offered was not more than twelve inches wide, Tom attempted to cross the ledge, and, by moving with the greatest care, and clinging to the rock overhead, he nearly succeeded in reaching the extremity of the cape; but his foot slipped—a swift intuition that his time had come flashed through his mind—and he fell headlong down the steep slope of snow. For thirty feet or more he touched nothing—he was in the air. Then he struck the snow, and rolled down it another fifty feet. At the bottom



"Headlong down the steep slope of snow."

of the slope was a channel, and Tom fell into this, which was filled with a soft drift of snow that saved his life.

He struggled out and found his rifle, with the contents of his cartridge-belt scattered around it. But, though unhurt, he was in a position from which he could not easily extricate himself. He could not get up to the ledge again and descend by the trail which he had followed in pursuit of the deer, and it was also impossible for him to go farther down the snow-field, which, beyond the channel into which he had fallen, was more precipitous than above. A sharp ridge connected the place where he stood with another peak, however, and it seemed that if he could manage to cross this there would be an easy way into the valley. The snow was packed on both sides of the ridge and lay against it at a sharp incline.

Using his rifle for an alpenstock, he attempted to cross it, but he had not proceeded more than a few feet when he saw something which filled him with terror. Coming up from the west, like a cloud, was a mountain snow-squall, and it seemed to him that he could not escape almost instant death. The wind was too high for him to retreat into the channel; he was perched upon a saddle of rock with precipices on both sides of him, and was fully exposed to the squall—a misty Arctic blast—as pitiless as ice, and filled with millions of lancet-points. A sudden darkness fell upon the mountain, and the pellets of ice and hard snow whizzed like bullets through the air and blinded him. Then came a gust which lifted him off his feet, and hurled him from where he had been standing down the lower slope.

He lay there, dazed and sore, and it was a wonder that

he ever recovered consciousness—scarcely less than a miracle, indeed, that the fall and the intense cold together did not quickly extinguish the little lamp of his life. He saw death approaching him, and felt the aching sort of sleepiness which comes upon those who are perishing from cold. But he staggered to his feet, and beat himself into wakefulness with his hands.

A sight of entrancing loveliness was opened to him. The squall, with its misty veil, had passed, and the sun, far over in the west, was dyeing the white peaks with rose-color. Millions and millions of diamonds appeared in the air, sparkling and shooting out every imaginable color—a very shower of gems, some mere atoms, and others not less than an inch in diameter. These were the snow and ice pellets which the whirling winds had shaped, and from some of the mountains long streamers of snow appeared like the banners of an invisible host.

Though the squall had blown over, Tom was not yet out of danger, by any means, as he well knew. Before reaching camp, he would have to cross several perilous ledges to the timbered foot-hills. With every step he took, there was the risk of detaching one of the snow-drifts, and being hurled with it down the mountain; and, even if the drifts held, their surfaces had frozen so hard that it was next to impossible to obtain a foot-hold upon them. He could not remain where he was, however; move he must.

He used his rifle as an alpenstock, as before. Holding the barrel firmly in one hand, he dug it into the snow for support, while with the other hand he scooped out a narrow

step in the slippery pack, and, planting one foot in this, he kept it there until he had cut out another step below it. Thus, step by step, each crevice having to be made before the one above it was abandoned, he descended some five or six hundred feet.

While he was congratulating himself on his progress, he again slipped, and again his fate seemed to be sealed. In an instant he threw all his weight upon the rifle-barrel, sinking it up to the breech in the snow, and thus making it serve as a brake. But he continued to slide down the mountain, and in a little while the stock snapped off the barrel, leaving him more helpless than ever.

One chance remained to him. The stock had gone flying down the mountain in advance of him, but he still grasped the barrel, and, lifting it above his head with both hands, he plunged it into the snow with all his might, and checked himself in his descent. He tremblingly felt for his knife, and found it in the scabbard of his belt.

Still lying flat on the snow, and fearful that the barrel would not continue to hold, he seized the buck-horn handle, and with the eight-inch blade cut a seat for himself in the ice-pack.

Sitting here, he looked about him. On both sides of him and before him was the ice-covered snow, as smooth as glass, upon which the shadows of night had already begun to fall. But, perilous as his position still was, he gathered strength and courage as he rested.

Though he had proved the danger of cutting steps in the snow with only the rifle-barrel to support, this was his only

way out of the difficulty, and he cautiously applied himself to it. It was painful work. Sometimes the knife-blade glanced and cut him; sometimes he lost his balance, and clung, shivering, by the fingers, to the narrow step which he had patiently excavated. But soon after dark he reached a terrace, from which the rest of the descent was without danger.

When he got to the foot of the mountain, he saw a light burning some distance up it, and a shout brought an answer from his friends, who were searching for him, and who an hour later joined him at the ranch.

Lieutenant Macomb had been unable to attain the peak which he had started out for, owing to the depth of snow, and as another storm broke next morning, and the country was evidently sealed for the winter, he moved the camp to Carson City, where the party was disbanded, each member gladly singing—

“Swing low, sweet chariot!”

as they saw the trains go by which would soon bear them to the East.

The name of the owner of the ranch, which had been so welcome a refuge to them, was discovered, and a handsome check on the United States Treasury was sent to him for the food and hay which had been used.

CHAPTER XIX.

TOM'S RANCH.

TOM had kept his eyes open during his travels, and he was now prepared to choose a ranch. The idea that a farm is to be easily picked up in the public domain had been driven out of his head. He had learned that the public lands are not in a condition to immediately yield a plenteous living; that they are more or less remote from large settlements, and that they can be converted from their original condition to the purposes of agriculture only by indomitable industry and endurance in the settler.

A farm may be had for nothing, if any man has "grit" enough to clear a wilderness, and endure the deprivation of those little conveniences and refinements which sweeten life in settled communities. Young men of sinew and resolution can do this; the thousands of working-men who over-populate the larger cities might do it with immense advantage to themselves and the world, if they could wean themselves from their unaccountable attachment to the tenement-house; and it is to be trusted that the immense surplusage of other countries, which is now flowing into this through Castle Garden, will do it.

But, as Tom saw, and as families long accustomed to the comforts of New England and the Middle States should distinctly remember, the public lands do not embrace any ready-made paradises; their development involves time and toil, and occasional contact with rude and desperate neighbors. Much in the way of education and religion is not to be expected; the lands in the vicinity of churches, schools, and lines of traffic are mostly occupied; and, at the same time, if a wise selection is made, a few years will usually see the introduction of these advantages, though they may seem far off at the date of settlement.

If the history of the public domain were written, it would abound with instances of malfeasance, of the graspings of individuals and corporations, of the evasion of the requirements of the law, and of swindles great and small, all perpetrated to the disadvantage of the *bona fide* settler under the homestead and pre-emption laws. To such an extent has this been the case, that a writer on the subject claimed, before the National Academy of Sciences, some time ago, that all the good public lands had been disposed of in one way or another, and that not enough suitable for poor men's farming was left to make a Wisconsin county.

There is no doubt that the person with capital finds it to his benefit to purchase from the railroads or other private holders, rather than to avail himself of the homestead and other privileges; for the choicer lands where there are towns and lines of communication have nearly all been absorbed, and are only purchasable at various prices much above the nominal one dollar and a quarter an acre.

The lands held and offered for sale by the several States, having been given to them by the General Government for improvements and educational purposes, are also more valuable and desirable than those which are public. They are mostly situated in the older parts of the country, where the settler has the advantage of railways, towns, and markets, and where school-houses, churches, and court-houses are already built, and society is fully organized; they are sold on long time, in annual installments, at a moderate rate of interest; the purchaser can pay the balance due for them at any time within the long period allowed; and, as the title is derived immediately from the State itself, there is no question as to its validity on account of mortgages, judgments, or arrears of taxes.

But, as was said before, there are still tracts remaining open to homesteading or pre-emption which, if the settler is persevering and industrious, may be transformed from wildernesses into fertile and valuable farms.

Tom, however, saw that he could not do better than buy a ranch in working order, and in the spring following his trip with Peter and Bob he established himself in the Huerfano Valley of Colorado. He chose sheep-farming instead of stock-raising, because the former required less capital and incurred less risk. For two thousand dollars he purchased a ranch large enough for two thousand head of sheep, with cabins, corrals, etc., attached. He paid three dollars apiece for one thousand ewes, and thirty dollars apiece for thirty bucks. Altogether, he invested a little less than seven thousand dollars.

Though he has not been exceptionally fortunate, he has averaged a profit of from twenty to thirty per cent annually on his capital, and he now has five thousand head of sheep on his ranch. The isolation of his position went hard with him during the first two or three years of his life in Colorado; he missed the friendships and the luxuries of his old home; but now he is as happy as possible. He says he would never care to live in the East again.

Mrs. Braithwaite and Polly are permanent residents of Denver, and last summer Tom was making extensive additions to his dwelling. When he bought the ranch his quarters were in a two-roomed cabin. Now he has built a pretty white, one-storied cottage, with a wide veranda, in front of which the vines have worked a leafy screen that keeps out the sun in the late afternoon; and it is no longer a secret that these improvements have been made in view of the time, rapidly approaching, when Miss Braithwaite will become Mrs. Smart.

I have reason to know that the Earl of Everton made a very complimentary offer to her, and that, as is the custom of American girls when they receive proposals from English noblemen, she refused him in favor of her own countryman. The earl remains the friend of both her and Tom, however, and spends at least half the year in Colorado. The parson was in Egypt last summer, and, during the bombardment of Alexandria, distinguished himself by his bravery.

Bob has an excellent position in connection with one of the mines, and is said to receive a salary of three thousand dollars a year. He is at no great distance from Prosperity Ranch, as Tom calls his place, and he often rides over to

spend a day with his friend. His old-time assurance has been toned down, and he is now anything but a presumptuous young man.

Peter has not seen Prosperity Ranch. He is tied down to a desk in the office of a big newspaper, upon which he has had a remarkable success, and it is said that no young journalist of his age—twenty-four, last February—has ever before given so much promise of an exceptionally brilliant career.

Prosperity Ranch has a hearty welcome in store for him; and the latch-string of that hospitable little house is always outside the door when a member of the Wheeler Expedition comes through the Huerfano Valley.

THE END.



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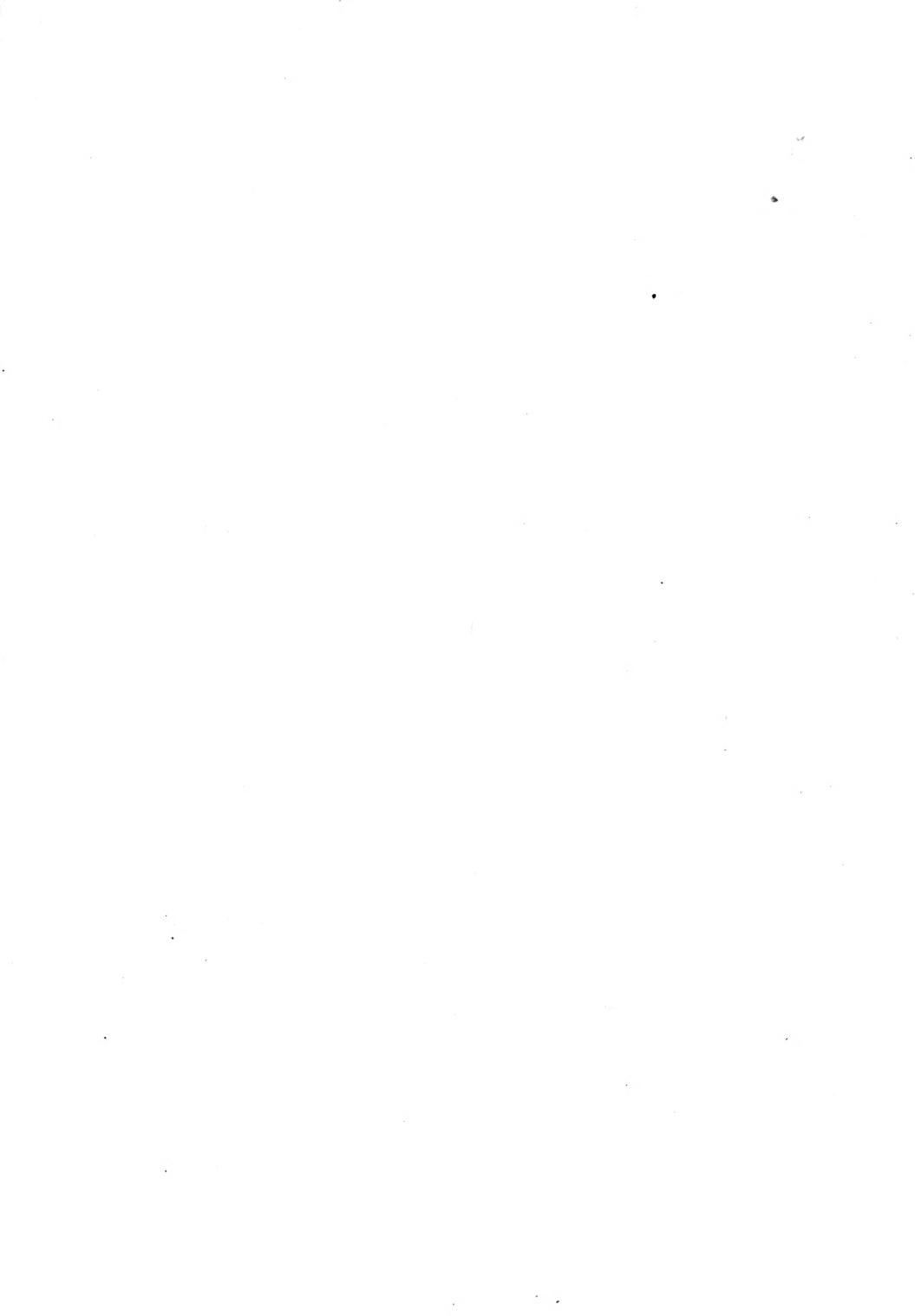
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